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**Is mentalising ability associated with
mental health difficulties in adolescents?
A systematic review**

**Understanding the construct of
mentalising in adolescence and its
association with mental health: A
structural equation model**

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THE UNIVERSITY
of **EDINBURGH**

Doctorate in Clinical Psychology

The University of Edinburgh

May 2018

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Acknowledgements

I would firstly like to thank all the pupils and schools that participated in this research, who without their support and participation this project would not have been possible. I especially want to thank the guidance teachers who were fundamental in setting up and allowing me access to the schools. Their eagerness to support a project related to improving our understanding of adolescent mental health is a credit to them all.

I would also like to acknowledge my supervisors for helping me through this project and the PhD students who provided their time to support me with using and understanding MPlus.

Finally, I would like to thank my friends, family, and most importantly my partner for always encouraging and believing in me.

Table of Contents

Abstract	7
Lay Summary	8
Is mentalising ability associated with mental health difficulties in adolescents? A systematic review	9
Abstract.....	9
Introduction	9
Research Questions.....	12
Methods	13
Eligibility Criteria	13
Information Sources and Search Terms.....	13
Quality Assessment and Risk of Bias.....	14
Results	15
Sampling and Conditions	21
Quality Assessment and Risk of Bias.....	21
Measures of mentalising	22
Mentalising ability and mental health	27
Mentalising ability and internalising disorders	27
Mentalising ability and externalising disorders	28
Mentalising ability and Borderline Personality Disorder (BPD)	29
Discussion.....	30
How is mentalising being measured?.....	30
Mentalising and Adolescent Mental Health	31
Implications for Research	32
Implications for Clinical Practice	32
Implications for Theory	33
Limitations	33
Conclusion	33
References.....	35
Understanding the construct of mentalising in adolescence and its association with mental health: A structural equation model	41
Abstract.....	41
Introduction	41
The Constructs of Mentalising	42
Mentalising and Adolescents	44
Measuring Mentalising in Adolescence	45

Mentalising and Adolescent Mental Wellbeing	46
Research Hypotheses	46
Method	47
Participants and Sampling	47
Measures.....	47
Procedure.....	49
Planned Analyses	49
Results.....	52
Attrition and Missing Data	52
Relationships between the Measures	52
Structural Equation Model (SEM) Analyses	52
Association between the refined model and mental wellbeing	56
Discussion.....	58
The relationship between the variables.....	58
RFQY	58
Model of Mentalising.....	58
The Association with Mental wellbeing.....	59
Implications for Theory, Research and Practice.....	60
Limitations of Research	61
Conclusions.....	62
References.....	63
Full List of References	69
Appendix A: Research Proposal	78
Appendix B: University Ethical Approval	94
Appendix C: Approval to Complete Research in Moray Schools	141
Appendix D: Participant Information Sheet.....	143
Appendix E: Parent/Guardian Information Sheet.....	145
Appendix F: Parent/Guardian opt-out consent form	149
Appendix G: Questionnaire.....	150
Appendix H: Teacher Instructions	170
Appendix I: Participant Debrief.....	173

Abstract

Mentalising is an “imaginative mental activity that enables us to perceive and interpret human behaviour in terms of internal mental states (e.g. needs, desires, feelings, beliefs, goals, purposes and reasons)” (Bateman & Fonagy, 2012; page 4). While this has been studied within an adult population, there has been a lack of research in understanding this construct in adolescence and its associations with mental health. This thesis aimed to systematically review the literature to establish if there was an association between mentalising difficulties and mental health disorders in adolescence. It further aimed to empirically investigate using a questionnaire-based study with adolescents, the constructs of mentalising and their associations with mental wellbeing.

The review found a negative association, indicating that low mentalising skills were a risk factor for mental health difficulties. However, there was a lack of research in this area and methodological and conceptual concerns about the measurement of mentalising.

The empirical study found that the theoretical model of mentalising did not fit for adolescents. This was discussed in relation to the need for further adolescent specific research to understand this developing construct. In addition, a refined model that was hypothesised to be ‘self-awareness’ was suggested that was found to predict the mental wellbeing outcomes, indicating a potential risk factor for mental health difficulties in adolescence.

Lay Summary

Mentalising is a thinking skill that involves the ability to understand the self and others in terms of feelings, thoughts and behaviours. While this has been studied in adults, less research has been conducted with adolescents. In addition, studies have shown that problems with mentalising may be a risk factor for mental health difficulties in adolescence. Therefore, the aim of this study was to understand mentalising in adolescence and its association with mental health disorders.

First, a literature review was completed on the research that has been published to understand if there was a link between difficulties in mentalising and mental health disorders. This review found that such a link did appear to exist. However, there were concerns about the lack of papers investigating this, and the measures of mentalising used in the research, as it was possible that these were not measuring mentalising accurately.

Secondly, a questionnaire-based study was completed with 495 adolescents attending three different high schools in the North-East of Scotland. The questionnaire contained several measures that were thought to look at constructs related to mentalising. The results indicated that the model of mentalising that had been developed with adults did not apply to adolescents indicating a need for further research to understand adolescent mentalising. However, the results found a smaller model that was thought to measure 'self-awareness' and this could predict mental wellbeing in adolescents.

In conclusion, this thesis found that mentalising appears to be important in relation to adolescent mental health. However, the current understanding of mentalising in adolescents needs to be re-considered, with less of a focus on adult research and more contemplation of the unique changes in mentalising that occur during adolescence.

Is mentalising ability associated with mental health difficulties in adolescents? A systematic review

Abstract

Research suggests a link between mentalising difficulties and mental health disorders in adults, but this has not been reviewed in adolescence. Thus, there is a need to review adolescent literature to establish if there is a relationship between mentalising ability and mental health difficulties among adolescents. Papers were included if there was a measure of mentalising and mental health, and this comparison was conducted with adolescents. Quality was assessed by using an adapted version of the Fowkes and Fulton (1991) checklist. The literature search identified 14 papers but there were concerns about the validity of some of the mentalising measures chosen. In addition, some of the studies were underpowered raising concerns about the reliability of the results. Despite these concerns there did appear to be a negative association between mentalising difficulties and internalising disorders, externalising disorders and BPD in adolescence. This has implications for adolescent mental health regarding current interventions and understanding of mentalising in adolescence. However, the lack of papers suggests a need for further research in this area to better understand this association. Furthermore, there is a need for future research to consider how mentalising should be measured in an adolescent population.

Introduction

One in ten UK adolescents are reported to experience mental health disorders (Office for National Statistics, 2005), with other reports indicating the prevalence in 10- to 15-year-olds being as high as one in eight (Office for National Statistics, 2015). Nearly half of all lifetime cases of mental health disorders will have started during adolescence (Kessler et al., 2005), and it appears that childhood and adolescent mental health is the best predictor of happiness and well-being in adulthood (Helliwell, Layard & Sachs, 2017). In addition, evidence suggests the prevalence of mental health conditions in adolescence is increasing (Collishaw, Maughan, Goodman & Picklers, 2004; Bor, Dean, Najman & Hayatbakhsh, 2014; Pitchforth et al., 2017). Therefore, it is key that mental health disorders in adolescence are understood and treated effectively with mentalising and the role it plays in adolescent mental health in particular requiring further development.

Mentalising is an “imaginative mental activity that enables us to perceive and interpret human behaviour in terms of internal mental states (e.g. needs, desires, feelings, beliefs, goals, purposes and reasons)” (Bateman & Fonagy, 2012; page 4). The concept was first developed by Fonagy (1991) in the consideration of borderline personality disorder (BPD) patients, and it looked to bring together aspects from the field of psychoanalysis and theory of mind, in the context of attachment. However, since then the concept has expanded, and it is now used in the treatment of other personality disorders (Bateman, O’Connell, Lorenzini, Gardner & Fonagy, 2016), eating disorders (Rothschild-Yaker, Levy-Shiff, Friedman-Balaban, Gus & Stein, 2010), and depression (Jakobsen et al, 2014).

The ability to mentalise is believed to develop throughout childhood and adolescence and is determined by the quality of a child’s early attachments, relationships and social learning environment (Bateman & Fonagy, 2016). It is suggested that the child begins to develop a mentalising predisposition through the attachment relationship, which has been supported by findings that securely attached children outperform insecurely attached children on mentalising tasks (Fonagy, Gergely & Target, 2007; Sharp & Fonagy, 2008). This would suggest that the attachment relationship is something key in facilitating the development of mentalising. However, it is not the only component thought to be involved in the development of mentalising, and Fonagy and Allison (2012) would argue that it is the interplay between the diverse social experiences and environments in a child’s life that leads to the mentalising that is associated with adults.

This would suggest that mentalising is a developmental process through childhood. Support for this theory has come from neuroimaging research, which found an association between the ability to achieve mentalising tasks and the development of specific parts of the brain (medial prefrontal cortex, temporal poles and posterior superior temporal sulcus), which are believed to be the mentalising system of the brain (Frith & Frith, 2003). In addition, this area of the brain appears to still be in development during adolescence (Blakemore, den Ouden, Choudhury & Frith, 2007), leading researchers to suggest that the ability to mentalise is also still expanding during this period (Blakemore, 2008).

Furthermore, it is suggested that the capacity to mentalise varies across individuals (Bateman & Fonagy, 2016), and a review of mentalising literature in adults has suggested that difficulties with mentalising is associated with different mental health

disorders (Fonagy, Bateman & Bateman, 2011). In addition, it is suggested that deficits in mentalising are more profound as mental health presentations become severe (Katznelson, 2014). This would suggest that having a strength in mentalising may be a protective factor for mental health difficulties. However, research within the field of BPD has suggested that hypermentalising (the tendency to overattribute extreme mental states to others (Sharp, Pane, Ha, Venta, Patel & Fonagy, 2011)) is the main component associated with difficulties in BPD (Sharp & Vanwoerden, 2015). Thus, it would appear that over- (hypermentalising) or under-mentalising (hypomentalising) could be a risk factor for mental health difficulties, particularly in the case of BPD.

Additionally, there appears to be evidence that this is the case for internalising disorders and externalising disorders. Internalising disorders refers to problems that are based on overcontrol (Cicchetti & Toth, 1991) and are within the individual, such as anxiety or depression (Merrell, 2008). In contrast, externalising disorders are described as disorders related to under-control and are often observed directly, such as conduct disorder (Merrell, 2008). Difficulties with mentalising have been associated with eating disorders (Rothschild-Yaker et al., 2010; Caglar-Nazali et al, 2014) and major depressive disorder (Fischer-Kern et al., 2013), both classified as internalising disorders, and for proactive aggression and psychopathic traits (Taubner, White, Zimmerman, Fonagy & Nolte, 2012) considered externalising disorders.

However, much of this research indicating an association between mentalising difficulties and mental health disorders has been completed with adults and as mentioned previously mentalising appears to still be developing during adolescence. Thus, it is not clear if these findings can be generalised to this population. Considering the prevalence of mental health problems in adolescence and the possibility that mentalising may be linked to these difficulties, there is a need to understand mentalising in adolescence more fully in order to help guide future research and clinical interventions. However, there has yet to be a systematic review to fully assess how the literature on this topic looks currently. Therefore, the aim of this review was to establish if a similar association was present between mentalising difficulties and mental health disorders in adolescence, and to consider if this was present across internalising and externalising disorders, and BPD. BPD was considered separately to internalising and externalising disorders as it is suggested that this is a disorder of

internalising and externalising behaviours (Eaton et al., 2011) and thus would not fit into either of these categories.

However, in order to do this, there needs to be consideration to the measure of mentalising among adolescents. Mentalising is a broad term which is thought to subsume several different constructs (i.e. affect consciousness, empathy, mindfulness, psychological mindedness, theory of mind; Choi-Kain & Gunderson, 2008; Allen, 2006; Sharp, 2006). Due to this complexity, many different measures have been created to try and capture mentalising, such as the reflective functioning questionnaire (Fonagy et al., 2016), reflective functioning scale (Fonagy, Target, Steele & Steele, 1998), and the mentalization questionnaire (Hausberg et al., 2012). These claim to measure all aspects of mentalising. Other measures however, have placed greater importance on a certain construct of mentalising (e.g. theory of mind) but still conclude that mentalising had been measured (e.g. reading the mind in the eyes test; Baron-Cohen, Jolliffe, Mortimore & Robertson, 1997). Therefore, there is currently no consensus on how mentalising is measured or enough consideration on the validity of the range of measures used. This could be a problem when comparing across studies that are all claiming to be measuring mentalising but are doing it in different ways. Thus, this review will initially consider how mentalising has been measured, followed by the findings from the studies.

Research Questions

How is mentalising being measured in the literature?

Is there a relationship between mentalising ability and mental health difficulties among adolescents?

If present, does this association exist for internalising and externalising disorders, and BPD?

Methods

Eligibility Criteria

Inclusion and exclusion criteria were drafted and then refined during a scoping phase using a sub-sample of papers. Inclusion criteria were:

1. Published studies written in English.
2. The participants were adolescents, defined as between 10-19 years (as defined by the United Nations; UNICEF, 2011). Studies were excluded if the mean age of participants was not within this age range but were not excluded if the sample was not exclusively adolescents (i.e. if it also included children younger than 10, or adults older than 19).
3. There was a measure of mentalising, which could include any tool defined as assessing mentalising ability (including: reflective functioning questionnaire for youths, mentalization questionnaire), specifically adolescents' mentalising ability (i.e. papers only considering parent mentalising were excluded).
4. There was a measure of mental health outcomes of participants. This included measures of specific mental health conditions (e.g. borderline personality disorder, depression) as recognised in the ICD-10 (World Health Organization, 1992), or measures of general mental health (e.g. strengths and difficulties questionnaire, youth self-report, young person's CORE).

Papers reporting studies of non-typically developing adolescents (e.g. autism spectrum disorder (ASD) or intellectual difficulties) were included because this review was interested in establishing if there was any links between mentalising ability and mental health disorders, not just of typically developing adolescence. In addition, research has shown difficulties of mentalising in individuals with ASD (David et al., 2007), making this a potentially interesting addition to this review.

Studies were excluded if there was no comparison between the mentalising and mental health measures.

Information Sources and Search Terms

The search was performed in November 2017 using the following electronic databases: Embase, PsychINFO, Medline and CINAHL. The search followed the guidelines stated by Prisma (Moher, Liberati, Tetzlaff & Altman, 2009). The databases were searched using the search terms mentali*, reflective function; mental disorders, disor*, anx*, dep*, low mood, schi*, psychosis, manic, phobia, anor*, buli*, adoles*,

youth, young adult, child. The results were then filtered to articles and dissertations. No year limit was placed on the search.

Irrelevant papers were removed by titles and abstracts, followed by an independent reviewer checking 10% of the papers using the inclusion/exclusion criteria. There was 100% agreement on all papers checked.

Quality Assessment and Risk of Bias

Risk of bias was assessed in this study using a checklist that was adapted from Fowkes and Fulton (1991). The adaptation was based on the criteria created by Jewell et al. (2016) with the removal of the criteria of a control group, as this was evaluated by both raters as unrelated to quality of the research reviewed in this analysis. Thus, the criteria were: a) adequate sampling, b) adequate sample size (i.e. reaching power), c) adequate measure of mentalising, d) adequate measure of mental disorder, e) acceptable attrition in the study. Risk of bias was assessed by the lead author and an independent reviewer. There was agreement between the raters on 93% of decisions, and discrepancies for five decisions (7%). These were discussed by the raters and a consensus was established.

Results

The search with duplicates removed found 1133 studies that were initially screened for suitability by titles and abstracts. The 67 remaining studies full papers were appraised for adherence to the inclusion and exclusion criteria. 14 studies were identified for inclusion in the review. A flowchart detailing this process can be found in *Figure 1* and descriptive details of these studies can be found in *Table 1*.

Figure 1: Flowchart of the selection of studies

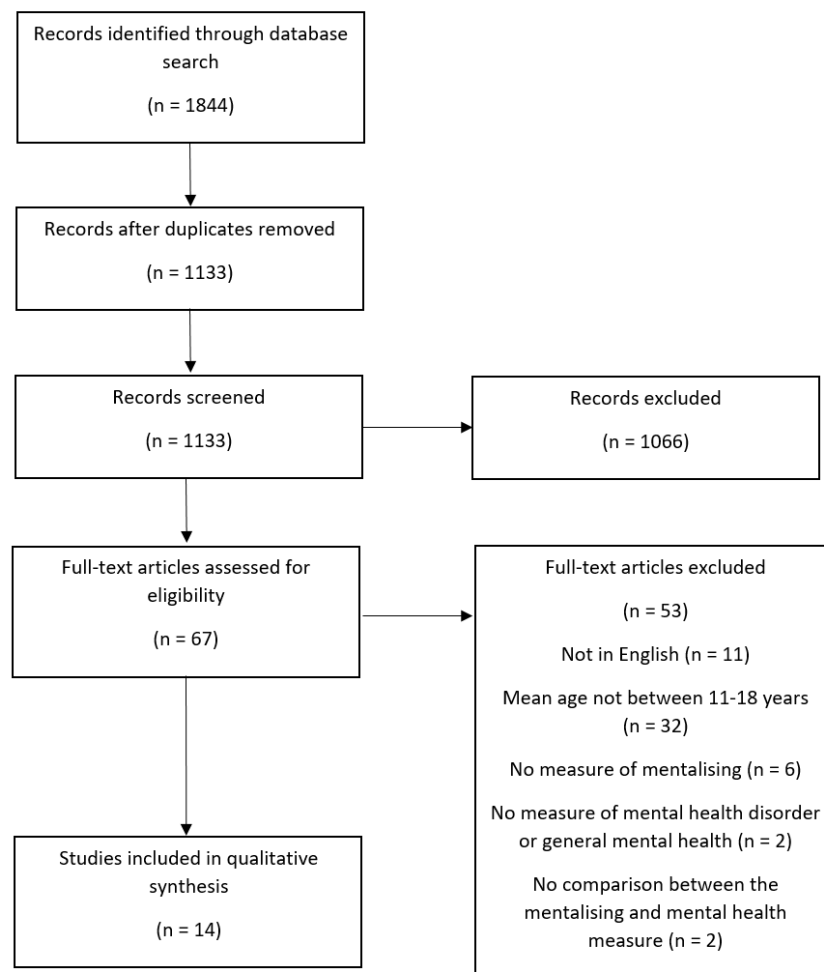


Table 1: Descriptive details of the included studies

<i>Study</i>	<i>N</i>	<i>Recruitment</i>	<i>Mean age in years (range)</i>	<i>Gender % Female</i>	<i>Procedure</i>	<i>Mentalising Measure</i>	<i>Mental Health Measure</i>
Badoud et al. (2015) Switzerland	130	Community – via written advertisement and word of mouth	15.72 (12-18)	50.8	Questionnaire	• RFQ (Reflective Functioning Questionnaire)	• BPI (Borderline Personality Inventory) • YSR (Youth Self-Report)
Bo et al. (2017) Denmark	109	Outpatient child and adolescent psychiatric clinic – consecutive referrals Two groups; BPD group (N=55) and clinical comparison (N=64)	16.1 (13-18) BPD = 15.9 Clinical comparison = 16.2	59.6 BPD = 70.2 Clinical Comparison = 56.6	Questionnaire	• RFQY (Reflective Functioning Questionnaire - Youth)	• BPFS-C (Borderline Personality Features Scale for Children) • YSR (Youth Self-Report) • BDI-Y (Beck Depression Inventory-Youth)
Chow et al. (2017) UK	95	Randomly selected from the Twin Early Development Study	14.97 (14-15)	51.6	Questionnaire	• RFS-A (Reflective Function Scale – Adolescent)	• YI-4 (Youth Inventory-4)
Fossati et al. (2014) Italy	91	Selected from a school sample based on their scores on the BPI. Three groups; high-BPD (N=29), low-BPD (N=31), and average-BPD (N=31)	16.7 (NR) High-BPD = 16.5 Low-BPD = 16.7 Average-BPD = 16.8	49.4 High-BPD = 55.2 Low-BPD = 35.5 Average-BPD = 35.5	Questionnaire	• RMET-R (Reading the Mind in the Eyes Test Revised)	• BPI (Borderline Personality Inventory)

Ha et al. (2013) USA	146	Adolescent unit of a private psychiatric hospital – consecutive referrals	15.75 (12-17)	NR	Questionnaire and Tasks	<ul style="list-style-type: none"> • RFQY (<i>Reflective Functioning Questionnaire - Youth</i>) • CRFS (<i>Child Reflective Functioning Scale</i>) • MASC (<i>Movie for Assessment of Social Cognition</i>) 	<ul style="list-style-type: none"> • BPFS-C (<i>Borderline Personality Features Scale for Children</i>)
Murri et al. (2017) Italy	83	Outpatient adolescent and young adults psychiatric clinic – consecutive referrals	16.8 (NR)	68.7	Questionnaire	<ul style="list-style-type: none"> • MZQ (<i>Mentalization Questionnaire</i>) 	<ul style="list-style-type: none"> • BDI-II (<i>Beck Depression Inventory-II</i>)
Quek et al. (2017) Australia	51	Clinical group – psychiatric inpatient unit Non-clinical group - community No information on how chosen	15.39 (12-18) Clinical = 15.65 Non-Clinical = 15.12	84.3 Clinical = 88.5 Non-Clinical = 80.0	Questionnaire	<ul style="list-style-type: none"> • RFQY (<i>Reflective Functioning Questionnaire - Youth</i>) 	<ul style="list-style-type: none"> • BPFS-C (<i>Borderline Personality Features Scale for Children</i>)
Rogers et al. (2006) UK	28	Residential school for children with Autism Two groups; Low callous-unemotional (N=18) and High callous-unemotional (N=10)	Low: 14.51 High: 14.60 (NR)	0	Tasks	<ul style="list-style-type: none"> • The Social Situations Task 	<ul style="list-style-type: none"> • APSD (<i>The Antisocial Screening Device</i>)

		No information on how chosen					
Rothschild- Yakar et al. (2010) Israel	69	Clinical - Inpatient eating disorder Unit (N=34) No information on how chosen Control – volunteers from high school and undergraduate students as part of their course (N=35)	Clinical: 18.2 Control: 17.8 (14-24)	100	Questionnaire	<ul style="list-style-type: none"> • AAI (RFS) (<i>Adult Attachment Scale (Reflective Functioning Scale)</i>) • TAT (SCORS) (<i>Thematic Apperception Test (Social Cognition and Object Relation Subscales)</i>) 	<ul style="list-style-type: none"> • EDI-2 (<i>Eating Disorder Inventory-2</i>)
Rothschild- Yakar et al. (2013) Israel	116	Clinical - Inpatient eating disorder Unit (N=71) – split into three groups No information on how chosen Control – volunteers from high school (N=45)	Clinical: AN- R=15.19, AN- B/P=16.44, BN=16.22 Control: 16.11 (14-19)	100	Questionnaire	<ul style="list-style-type: none"> • ORI (<i>Object Relations Inventory</i>) 	<ul style="list-style-type: none"> • EDI-2 (<i>Eating Disorder Inventory-2</i>)
Sharp et al (2011) USA	111	Adolescent inpatient unit – consecutive referrals	15.5 (12-17)	55.9	Questionnaire	<ul style="list-style-type: none"> • MASC (<i>Movie for Assessment of Social Cognition</i>) 	<ul style="list-style-type: none"> • BPFS-C (<i>Borderline Personality Features Scale for Children</i>)

						<ul style="list-style-type: none"> • YSR (<i>Youth Self-Report</i>) • DISC (<i>Diagnostic Interview Schedule for Children</i>) • APSD (<i>Diagnostic Interview Schedule for Children</i>)
Sharp et al. (2013) USA	164	Adolescent inpatient unit – consecutive referrals	15.5 (12-17)	37.8	Questionnaire	<ul style="list-style-type: none"> • MASC (<i>Movie for Assessment of Social Cognition</i>) • CI-BPD (<i>Childhood Interview for DSM-IV Borderline Personality Disorder</i>) • BPFS-C (<i>Borderline Personality Features Scale for Children</i>) • YSR (<i>Youth Self-Report</i>) • DISC (<i>Diagnostic Interview Schedule for Children</i>)

Taubner et al. (2013) Germany	104	High Schools – volunteered	16.4 (15-24)	43.3	Questionnaire	<ul style="list-style-type: none"> • AAI (RFS) (Adult Attachment Scale (Reflective Functioning Scale)) • RPQ (Reactive-Proactive-Aggression Questionnaire) • PPI-R (Psychopathic Personality Inventory-Revised)
Taubner et al. (2016) Germany	161	Clinical – youth psychiatry facilities (N=63) Opted-in Community – high schools (N=98) Opted-in	16.5 (14-21) Clinical = 17.2 Community = 15.9	52.8	Questionnaire	<ul style="list-style-type: none"> • AAI (RFS) (Adult Attachment Scale (Reflective Functioning Scale)) • RPQ (Reactive-Proactive-Aggression Questionnaire) • SCID-II (Structured Clinical Interview-II)

NR, Not Reported; AN-R, Anorexia Nervosa – Restrictive subtype; AN-B/P, Anorexia Nervosa – Binge/Purge subtype; BN, Bulimia Nervosa;

Sampling and Conditions

The sample across the studies was 1458 participants, with 80 participants being part of a control group. Participants were recruited from a range of settings, including inpatient wards (6), outpatient clinics (2), community settings (2), high schools (5), the twin early development study, and a residential setting for adolescents with autism. One of the community samples and two of the high school samples were the control groups for the three studies that included this. Most of the studies (9) had a larger proportion of females within the sample and followed a questionnaire format (12) apart from one that only used tasks and another that used a combination of questionnaires and tasks. In all cases the questionnaires or tasks were completed at a single point in time, giving a cross-sectional design. The studies were from a range of countries, with the most studies coming from the USA (3). The age range of the participants was only within adolescence (10-19 years) for nine of the studies and extended into young adulthood for three of the studies. However, the mean age was within adolescence.

Quality Assessment and Risk of Bias

Results for the assessment of a bias within individual studies is presented in *Table 2*. This revealed a risk of bias in some studies in relation to the validity of the mentalising measure chosen. Two studies used measures that had weak evidence supporting their use in measuring mentalising (Rogers, Viding, Blair, Frith & Happe, 2006; Rothschild-Yakar, Waniel & Stein, 2013). A further study used a measure where there were queries about the validity in measuring mentalising, but there was some evidence supporting its use (Sharp et al, 2011), although caution is needed in the interpretation of this paper. Two studies used more than one measure of mentalising (Ha, Sharp, Ensink, Fonagy & Cirino, 2013; Rothschild-Yakar, Levy-Shiff, Fridman-Balaban, Gur & Stein, 2010). In both cases one of the measures was evaluated as a poor-quality measure of mentalising, however, the other measures were viewed as adequate quality. There were no concerns about the measures chosen to measure the mental health component of the studies.

There were some queries about whether the sampling methods chosen in some papers led to a representative sample, but overall there did not appear to be signs of bias in this area. Most of the studies were powered for the analyses they conducted. However, two studies were not sufficiently powered (Fossati, Feeney, Maffei & Borroni, 2014; Rothschild-Yakar et al., 2010), and two studies were not sufficiently powered for all the analyses reported (Sharp et al., 2011; Taubner, White, Zimmermann, Fonagy & Nolte, 2013). For the majority of studies identified as having

potential issues with attrition, there were queries about the loss of participants. In all these cases however, this consisted of only a small proportion of the overall sample and therefore is unlikely to have biased the results in a significant way. One study raised concerns in this area due to some of the results not being reported (Taubner, Zimmerman, Ramberg & Schröder, 2016), raising the possibility of reporting bias.

Table 2: Assessment of Risk of Bias

First Author (Year)	Study Type	Sampling	Sample Size	Measure of Mentalising	Measure of Mental Health	Attrition
Badoud (2015)	C	1	2	2	2	2
Bo (2017)	C	2	2	2	2	1
Chow (2017)	C	1	2	2	2	2
Fossati (2014)	C	2	0	2	2	1
Ha (2013)	C	1	2	2	2	2
Murri (2017)	C	1	2	2	2	1
Quek (2017)	C	1	2	2	2	2
Rogers (2006)	C	2	2	0	2	2
Rothschild-Yakar (2010)	C	1	2	2	2	2
Rothschild-Yakar (2013)	C	1	0	1	2	2
Sharp (2011)	C	1	1	1	2	1
Sharp (2013)	C	1	2	1	2	1
Taubner (2013)	C	1	1	2	2	2
Taubner (2016)	C	1	2	2	2	1

Notes: C, cross-sectional; E, experimental; 2, adequately covered; 1, partially covered; 0, not adequately covered

Measures of mentalising

Eleven different measures were used to evaluate mentalising across the studies. A number of these measures were viewed to lack strong evidence supporting their validity in measuring mentalising. One example of this was the social situations task (used by Rogers et al., 2006) which showed no clear link to mentalising in its original design (Dewey, 1991). Another measure (Object Relations Inventory; used by Rothschild-Yakar et al., 2013) showed some indication that it measured mentalising, however this did not appear to be as valid as other measures that were used (Lowyck et al., 2010). Finally, the MASC (Movie for Assessment of Social Cognition) was used by two studies (Sharp et al., 2011, Sharp et al., 2013) but was rated as less valid due

to no clear evidence of it measuring mentalising. Instead there appeared to only be an association between two mentalising tasks (Dziobek et al., 2006). In both the above cases (ORI and MASC) the measures were initially designed to measure something different and then later considered to measure mentalising which raised concerns about the validity of the measure to do this.

Three measures were used by more than one study while the rest were used in relation to a single study. Of the three that were used in more than one study, there are questions about the validity of one of the measures (MASC) as stated above. The other two measures (RFQY and AAI (RFS)) were assessed as valid measures of mentalising. Most studies only used one measure of mentalising (12), while one study used two and another employed three measures. All the studies used measures that had been used previously, apart from one (Badoud et al., 2015) that had adapted a validated measure into French.

Table 3: Summary of the results of the included studies

Study	Findings	Effect Size
Badoud et al. (2015) Switzerland	RFQ creates two subscales; Certainty for mental states (RFQc; in the extreme indicates hypermentalising) and Uncertainty for mental states (RFQu; in the extreme indicates hypomentalising or low mentalising) <ul style="list-style-type: none"> RFQc was negatively correlated with internalising, externalising and borderline measures, indicating that lower hypermentalising scores are associated with higher scores on the mental health measures RFQu was positively correlated with internalising, externalising and borderline measures, indicating higher levels of hypomentalising are associated with higher scores on the mental health measures 	Small-medium
Bo et al. (2017) Denmark	Mentalising was negatively correlated with borderline pathology, externalising and internalising disorders, indicating that lower levels of mentalising are associated with higher scores on the mental health measures	All large
Chow et al. (2017) UK	Mentalising was positively correlated with internalising disorders, indicating better mentalising was associated with higher scores on the internalising measure No correlation was found with externalising disorders, indicating no effect of mentalising	Small
Fossati et al. (2014) Italy	High-BPD group found to be significantly lower on mentalising than low-BPD group, but not for the average-BPD group, indicating greater mentalising difficulties in the high-BPD group. All groups had lower mentalising than healthy adults, indicating an association between lower mentalising ability and BPD	Medium-large
Ha et al. (2013) USA	Mentalising was negatively correlated with borderline features, indicating that lower mentalising was associated with higher borderline features Participants above cut-off on borderline features showed significantly poorer mentalising than those below, suggesting difficulties with mentalising for individuals with borderline features	Medium
Murri et al. (2017) Italy	Mentalising was negatively correlated with depression (internalising disorder), indicating an association between lower mentalising ability and higher scores on the depression measure	Large

Quek et al. (2017) Australia	Mentalising was negatively correlated with BPD, indicating an association between lower mentalising ability and higher BPD scores	Large
Rogers et al. (2006) UK	Both groups showed impairments in mentalising, indicating a difficulty with mentalising for individuals with a diagnosis of autism No significant difference between the groups, indicating that mentalising did not have an effect on the level of callous-unemotional symptoms (associated with externalising disorders)	Could not determine
Rothschild-Yakar et al. (2010) Israel	Lower mentalising was found in the eating disorder (internalising disorder) group in comparison to the control, indicating that individuals with an eating disorder have lower levels of mentalising	Large
Rothschild-Yakar et al. (2013) Israel	All eating disorder (internalising disorder) groups showed lower levels of mentalising, indicating that individuals with an eating disorder have lower levels of mentalising	Could not determine
Sharp et al (2011) USA	Borderline traits were negatively correlated with mentalising, indicating an association between lower mentalising ability and greater borderline traits Borderline traits were positively correlated with hypermentalising, indicating that higher levels of hypermentalising are associated with greater borderline traits Internalising disorders and APSD (externalising disorder) were negatively correlated with mentalising, indicating that difficulties with mentalising are associated with higher scores on these measures Internalising and externalising disorders were positively correlated with hypermentalising, indicating that higher levels of hypermentalising were associated with higher scores for internalising and externalising disorders	Small-medium
Sharp et al. (2013) USA	BPD group had higher hypermentalising scores than the non-BPD group, indicating greater levels of hypermentalising in the BPD group This was not found for internalising or externalising disorders, indicating that hypermentalising was not associated with this Hypermentalising was positively correlated with the severity of BPD symptoms, indicating that as hypermentalising scores increased, so did the severity of the BPD symptoms	Small-medium

Taubner et al. (2013) Germany	<p>Mentalising was negatively correlated with psychopathy and aggression (proactive and reactive; externalising disorders), indicating that lower levels of mentalising was associated with higher scores for psychopathy and aggression</p> <p>The relationship between psychopathy and aggression was strongest when mentalising was low, which would suggest a possible mediating effect</p>	Small-medium
Taubner et al. (2016) Germany	<p>Mentalising was found to partially mediate the relationship between childhood maltreatment and potential for violence (associated with externalising disorders), indicating that higher mentalising was associated with a reduced potential for violence</p> <p>Mentalising was negatively correlated with RPQ and conduct disorder (externalising disorders), indicating that lower levels of mentalising are associated with higher scores for RPQ and conduct disorder</p>	Small-medium

Mentalising ability and mental health

The findings of the 14 papers are shown in *Table 3*. As previously mentioned the findings are reviewed in terms of the broader categories of internalising and externalising disorders, and BPD.

Three studies considered BPD (Fosatti et al., 2014; Ha et al., 2013; Quek, Newman et al., 2017), four studies looked at internalising, externalising disorders, and BPD (Badoud et al., 2015; Bo & Kongerslev, 2017; Sharp et al., 2011; Sharp et al., 2013), and one study looked at internalising and externalising disorders (Chow, Nolte, Cohen, Fearon & Shmueli-Getz, 2017). Three studies considered only internalising disorders (Murri et al., 2017; Rothschild-Yakar et al., 2010; Rothschild-Yakar et al., 2013), and three considered only externalising disorders (Rogers, et al., 2006; Taubner et al., 2013; Taubner et al., 2016).

Most studies (7) used a measure of general mental health that considered internalising and externalising disorders. One study specifically looked at depression (Murri et al., 2017), and two looked at eating disorders (Rothschild-Yakar et al., 2010; Rothschild-Yakar et al., 2013). In terms of externalising disorders, three studies looked at psychopathy (Rogers et al., 2006; Sharp et al., 2011; Taubner et al., 2013), and two at aggression (Taubner et al., 2013; Taubner et al., 2016).

Mentalising ability and internalising disorders

Eight studies considered the association between mentalising ability and internalising disorders. In six of these studies mentalising ability was found to negatively correlate with internalising disorders (Badoud et al., 2015; Bo & Kongerslev, 2017; Murri et al., 2017; Rothschild-Yakar et al., 2010; Rothschild-Yakar et al., 2013; Sharp et al., 2011), with two studies finding a large effect size. This would indicate that for these studies lower mentalising ability was associated with greater reported internalising disorders. However, one study found a positive correlation between mentalising and internalising disorders (Chow et al., 2017), suggesting that better mentalising was associated with increased reported internalising disorders. This was the only study to use the Reflective Functioning Scale – Adolescent (RFS-A) and therefore this finding may be related specifically to this measure.

Varying results were found for the association between hypermentalising (the tendency to overattribute extreme mental states to others (Sharp, Pane, Ha, Venta, Patel & Fonagy, 2011)) and internalising disorders. While one study showed that lower levels of hypermentalising was associated with higher reported levels of

internalising disorders (Badoud et al., 2015), another found the opposite, with greater hypermentalising being associated with internalising disorders (Sharp et al., 2011). Finally, a further study found no association, suggesting hypermentalising was not related to internalising disorders (Sharp et al., 2013).

All the studies that specifically looked at eating disorders found a negative correlation with large effect sizes (Rothschild-Yakar et al., 2010; Rothschild-Yakar et al., 2013), and similar findings were found for the study considering depression (Bo & Kongerslev, 2017).

Mentalising ability and externalising disorders

For externalising disorders, eight studies looked at the association with mentalising ability. Five of these studies found a negative correlation between mentalising ability and externalising disorders (Badoud et al., 2015; Bo & Kongerslev, 2017; Sharp et al., 2011; Taubner et al., 2013; Taubner et al., 2016). This would indicate that for these studies lower mentalising ability was associated with greater reported externalising disorders. Effect sizes were in the small to medium range, apart from Bo & Kongerslev (2017) where large effect sizes were found. Two studies found no correlation, however, the results of one study may have been due to the measure used (Chow et al., 2017), and the other study (Rogers et al., 2006) was the only one whose participants had an autism spectrum condition (ASC), which may have had an impact on the results.

Similar to the findings for internalising disorders, there was not a clear indication on the association between hypermentalising and externalising disorders. Again, one study found a negative correlation (Badoud et al., 2015), indicating lower hypermentalising being associated with externalising disorders, while another study found the opposite (Sharp et al., 2011). The final study found no association between hypermentalising and externalising disorders (Sharp et al., 2013).

Of the two studies that considered aggression, both found a negative correlation with mentalising with small to medium effect sizes (Taubner et al., 2013; Taubner et al., 2016). Two of the studies looking at psychopathy found a negative correlation with mentalising, again with small to medium effect sizes (Sharp et al., 2011; Taubner et al., 2016). The other found no correlation (Rogers et al., 2006), however, as previously mentioned this study was the only one to look at ASC.

Mentalising ability and Borderline Personality Disorder (BPD)

A negative association was found between mentalising ability and borderline traits in six papers (Badoud et al., 2015; Bo & Kongerslev, 2017; Fosatti et al., 2014; Ha et al., 2013; Quek et al., 2017; Sharp et al., 2011), with one study finding significantly lower levels of mentalising in those above the cut-off for BPD in comparison to those below (Ha et al, 2013). This would further indicate difficulties with mentalising for individuals with BPD. A number of these studies found a medium to large effect size for these findings (Bo & Kongerslev, 2017; Fosatti et al., 2014; Ha et al., 2013; Quek et al., 2017).

In two studies hypermentalising was found to positively correlate with borderline traits (Sharp et al, 2011; Sharp et al, 2013), which would indicate that over-mentalising is also related to difficulties with BPD. However, in contrast one study found that lower levels of hypermentalising was associated with higher reported levels of BPD (Badoud et al., 2015) and thus this association is not clear.

Discussion

How is mentalising being measured?

It was found that 11 different measures were used across the 14 studies to evaluate mentalising with questions regarding the validity of some of these measures. Ideally when reviewing the literature there is an aim to be able to collate this information and do further analysis (using a meta-analysis) so stronger conclusions can be made. However, when so many measures are being used this is not possible due to the range and variety of the measures in terms of length, style, focus and scope. This in turn leads to a reduced confidence in the similarities between the measures and a likelihood that the experience of completing the measures for the participants was also different. Thus, there is a possibility that not all the measures are rating the exact same thing. Therefore, there is a need for a consensus or at a minimum a reduced number of measures for mentalising to allow this to be a possibility in the future.

In addition, while some of the measures had been designed to specifically measure mentalising, others had been developed with a different purpose in mind and then latterly considered to also measure mentalising (ORI and MASC). Furthermore, one measure appeared to have no evidence supporting its use for measuring mentalising (the social situations task) and consequently raised significant doubts in its ability to do this. This is of concern as the validity and reliability of these measures in measuring mentalising is unclear as the psychometrics related to the measure were not conducted in relation to mentalising. Thus, there is a possibility that mentalising is not being measured in these cases. If this is the case then the results of these studies in relation to mentalising would be in doubt.

Several measures were found to have been developed specifically to measure mentalising and of these, two measures were found to be more frequently used, with one in a questionnaire format (RFQY) and the other a scoring template applied to the adult attachment interview (RFS). Thus, considering the need for fewer measures of mentalising, these may be preferable for use in future research. However, both were developed in an adult population and then adapted for adolescents in terms of their wording. As previously mentioned this may be of concern, as mentalising appears to be a developing ability in adolescence (Blakemore, 2008). Therefore, it is possible that a measure that has been developed within an adult population is unable to accurately measure adolescent mentalising, which would suggest the need to develop a specific adolescent measure for mentalising or for research to be conducted to consider if adolescent mentalising is being accurately measured.

Mentalising and Adolescent Mental Health

Despite the use of a range of mentalising measures, a consistent pattern was found between low mentalising ability and mental health difficulties, and was found amongst internalising disorders, externalising disorders and BPD. In addition, this association was specifically found for eating disorders, depression, aggression, and psychopathy. While there were several studies that did not fit with this conclusion, a range of concerns were raised about these studies and therefore the results were treated with caution. Consequently, it would appear that low mentalising ability is a risk factor for mental health disorders in adolescence. This is something that has already been tentatively found in the literature, with deficits in mentalising being linked to increased risk of developing an eating disorder in adolescents (Cate, Khademi, Judd & Miller, 2012), and violent behaviour in schizophrenia in adults (Bo, Abu-Akel, Kongerslev, Haahr & Simonsen, 2011). However, in both these cases there was a focus on a specific condition, but this review would suggest that difficulties with mentalising may have an influence on mental health severity transdiagnostically.

Furthermore, a number of studies considered the association between hypermentalising (the tendency to overattribute extreme mental states to others (Sharp, Pane, Ha, Venta, Patel & Fonagy, 2011)) and mental health difficulties. However, the results for this were inconclusive. While some research indicated that high levels of hypermentalising was associated with greater mental health difficulties (in terms of internalising disorders, externalising disorders and BPD), others found the opposite and a further study found no association at all. It is possible that while there appears to be a clear pattern emerging of low mentalising being associated with mental health difficulties transdiagnostically, this might not be the case for hypermentalising (or over-mentalising). It may be that hypermentalising is only associated with certain mental health conditions and has little to no association with others. In order for this to be clarified there will need to be further research specifically considering hypermentalising with certain diagnoses to see where this association is present. From the results of this review it would appear hypermentalising is linked to BPD due to a number of studies that are already considering this area. However, again the results were not consistent here. In addition, the variation in the results found may be due to the range of measures used and thus when considering future research there will be a need for consensus on the measure of mentalising.

Implications for Research

It is clear from the lack of findings in this review, that there is a need for further research in this area. Only 14 papers were identified that examined associations between mentalising ability and mental health difficulties according to inclusion criteria. Thus, while a clear pattern was found, it is not possible to confidently conclude this association. In addition, it would have been preferable to have completed a meta-analysis of these findings to strengthen this conclusion. This was not possible though due to the wide range of measures used to assess mentalising, as well as the limited number of papers in each diagnostic area. While many of the papers considered a measure of general mental health, only a few distinct diagnoses were investigated. Consequently, the strongest evidence found in the review was for the association between mentalising and internalising or externalising disorders, and borderline personality disorder. Therefore, there is a need for further research on the specific disorders already considered in this review, as well as diagnoses not yet considered to establish if the same pattern is found. Furthermore, with the view of conducting a meta-analysis, a consistent measure of mentalising will need to be used and as previously mentioned a new measure may need to be developed in order to accurately capture adolescent mentalising.

Implications for Clinical Practice

The potential link between mentalising and a range of mental health disorders in adolescence would suggest that interventions that aim to improve mentalising skills could be effective in treating adolescent mental health disorders. Several different treatments have been created based on mentalising theory for adolescents (Bevington, Fuggle, Fonagy, Target & Asen, 2012; Starr, 2016), with initial studies showing promising findings (Rossouw & Fonagy, 2012). However, this type of treatment tends to be restricted to patients with BPD and self-harm. Thus, with the current finding of a link between mentalising and a range of conditions, there is potential to expand these treatments to other diagnoses. However, this will require much more research in order to establish whether a focus on improving mentalising has a beneficial effect on mental health more generally, and specifically in which populations can improving mentalising be most effective.

Additionally, incorporating a mentalising component to treatments that have already been validated within an adolescent population, may improve effectiveness. This has been shown in other types of therapies, for example mindfulness based cognitive therapy, where the addition of a mindfulness component to cognitive therapy reduced

the relapse rates in recurrent depression in adults from 70% to 39% (Williams, Russell & Russell, 2008). Research will be needed though to consider all of these aspects.

Implications for Theory

Fundamentally there is a need to understand mentalising better. As mentalising is a construct that contains many different areas (Choi-Kain & Gunderson, 2008), it can be unclear where focus should be placed when designing effective interventions. Mentalising research has focused on adults and it cannot be assumed that this can be generalised to adolescents. There is a need for adolescent specific research to establish if mentalising is conceptually the same in adolescents as adults. With this enhanced understanding of adolescent mentalising, there is scope for advancements in research and clinical practice.

Limitations

The research included in this review only used cross-sectional, correlational designs. Thus, it is not possible to determine causal links between mentalising difficulties and mental health disorders. It is equally as possible that difficulties with mentalising are a result of the mental health condition and have no causal influence on its development. For this question to be answered further research that uses a longitudinal design is needed to determine if the difficulties that are found in mentalising pre-date the onset of the mental health disorder.

Furthermore, this systematic review only considered studies that were published in English and thus may have excluded further published research. However, it is hoped that this potential bias is small as through the initial search only a few studies were identified that were not in English, with it being unlikely that all of these would have met inclusion criteria. In addition, several studies (4) were published this year, possibly indicating an increase of research in this area. Whilst this could be a limitation of this study, it is hoped that this timely review will guide future research and reduce the issues highlighted above.

Conclusion

This is the first systematic review to examine the link between mentalising ability and mental health disorders in adolescence, and although several limitations in the evidence-base have been identified, a negative association was indicated. Difficulties with mentalising in adolescence is a risk factor for mental health difficulties. This has implications for theory but also potential for beneficial interventions for adolescents. It also would suggest that findings related to adult research appear to be reflected in

the adolescent population. However, there has not yet been any research to determine if adolescent mentalising is the same as adult mentalising. Thus, this systematic review found that the research on adolescent mentalising is still in its infancy and there is a requirement for further studies with a focus on validated measures of mentalising for adolescents to be conducted.

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Understanding the construct of mentalising in adolescence and its association with mental health: A structural equation model

Abstract

Mentalising is a multi-dimensional construct that has been studied in adults but remains relatively under-researched in adolescence. However, tentative findings suggest difficulties with mentalising are associated with adolescent mental health disorders. Thus, there is a need to understand mentalising in adolescence and its association with mental wellbeing. A questionnaire-based study containing measures related to several constructs associated with mentalising and two measures of mental wellbeing was conducted with 495 adolescents across three high schools based in North-East Scotland. The results were analysed using structural equation modelling (SEM) with the findings indicating that the model of mentalising did not fit for adolescents. This was discussed in relation to the need for further adolescent specific research to understand this developing construct. In addition, a refined model that was hypothesised to be 'self-awareness' was suggested that was found to predict mental wellbeing outcomes, indicating a potential risk factor for mental wellbeing difficulties in adolescence.

Introduction

Mentalising "describes the way humans make sense of their social world by imagining the mental states (e.g., beliefs, motives, emotions, desires, and needs) that underpin their own and others' behaviours in interpersonal interactions" (Choi-Kain & Gunderson, 2008; page 1127). The concept was first developed by Fonagy (1991) and it looked to bring together aspects from the field of psychoanalysis and theory of mind, in the context of attachment.

Bateman and Fonagy (2004) argued that mentalising is a multidimensional construct, consisting of three dimensions. The first, implicit/explicit relates to whether mentalising is conscious (explicit) or unconscious (implicit). An example of implicit mentalising would be turn-taking in conversation (Allen, 2006), with the process of psychotherapy considered explicit mentalising (Choi-Kain & Gunderson, 2008). The next dimension relates to mentalising regarding the self or others. Within the adult literature these two constructs are considered to be highly related, as the ability to

mentalise about the self will affect the ability to mentalise about others (Bateman & Fonagy, 2004). The final dimension relates to the content of the mentalising activity which might be cognitive or affective. Depending on the activity these may be isolated or interacting (Allen, 2006).

More recently, these dimensions have been considered in relation to a number of conceptual overlaps which has resulted in a multidimensional model of mentalising (Choi-Kain & Gunderson, 2008). This model contains four constructs (mindfulness, empathy, affect consciousness and psychological mindedness) which are believed to relate to one another to varying degrees and also load onto a higher order construct that is argued to be mentalising (Choi-Kain & Gunderson, 2008). The constructs and theory are explored below.

The Constructs of Mentalising

Mindfulness

Mindfulness has been defined as “the state of being attentive to and aware of what is taking place in the presence” (pp. 822; Brown & Ryan, 2003) and is believed to consist of two components; attention regulation and acceptance/openness to experience (Bishop et al., 2004). It is believed to overlap with mentalising in terms of this first aspect (Choi-Kain & Gunderson, 2008), with mentalising and attention regulation related to an individual directing their attention to their own experience. However, distinctively mindfulness is only concerned with the present while mentalising can consider the past, future or present (Brown & Ryan, 2003). Additionally, it has been proposed that the act of being mindful may promote mentalising (Allen, 2006). In terms of the dimensions it is considered to be an explicit process, related to the self and can be a cognitive and affective activity (Choi-Kain & Gunderson, 2008).

Psychological Mindedness

Appelbaum defined psychological mindedness as “a person’s ability to see relationships among thoughts, feelings, and actions, with the goal of learning the meanings and causes of his experiences and behaviour” (pp. 36; Appelbaum, 1973), which places a focus on the self. However, Farber (1985) broadened this definition to include the analysis of others behaviour, resulting in far greater overlap with mentalising (Allen, 2006). Psychological mindedness is viewed to be the same as mindfulness in terms of the dimensions (Choi-Kain & Gunderson, 2008), which further suggests similarities between these constructs.

Empathy

Empathy is described as a “complex form of psychological inference in which observation, memory, knowledge, and reasoning are combined to yield insights into the thoughts and feelings of others” (pp. 73; Decety & Jackson, 2004). It is argued that if empathy was to be expanded to consider empathy towards oneself, the two concepts would almost completely overlap (Allen, 2006). Empathy can be implicit or explicit and as stated focuses on others. It also appears to be more of an affective activity than cognitive (Choi-Kain & Gunderson, 2008).

Affect Consciousness

Affect consciousness is described as the ability to perceive, reflect on and express the experience of the affect system (Monsen & Monsen, 1999). This is believed to partially overlap with mentalising, as both consider the ability to feel, understand and express affect (Mohaupt, Holgersen, Binder & Nielsen, 2006). Affect consciousness does not involve the cognitive aspects of mentalising but being aware and able to describe affect mental states is key to being able to mentalise (Choi-Kain & Gunderson, 2008). Similar to empathy, affect consciousness is viewed as an affective activity but is considered an explicit process. It is also the only construct that can be directed to the self or to others.

Relationships between the Constructs

As well as being related to mentalising, there is research to suggest that the constructs are also correlated with each other. For example, psychological mindedness has been shown to negatively correlate with alexithymia (Shill & Lumley, 2002), which is considered the lack of affect consciousness (Choi-Kain & Gunderson, 2008), and positively correlated with mindfulness (Beitel, Ferrer & Cecero, 2005). In addition, it has been shown to positively correlate with the perspective taking and empathetic concern subscales, and negatively correlate with the personal distress subscale of the Interpersonal Reactivity Index (IRI) which is a measure of empathy (Beitel et al., 2005).

Furthermore, studies have shown a similar negative correlation between empathy and alexithymia (Silani et al., 2008), and it is believed that psychological mindedness is promoted by an individual's ability to be mindful (Brown and Ryan, 2003). Therefore, there appears to be evidence supporting the aforementioned theory.

In addition, self-compassion has been shown in the research to correlate with mentalising (Gilbert, 2014), and thus theoretically may also be connected to the other constructs and mentalising.

Self-Compassion

Self-compassion is defined as the ability to be 'kind and understanding towards oneself' and 'hold painful thoughts and feelings in mindful awareness' (pp.223; Neff, 2003). While, it has been linked to mindfulness (Allen, 2013), empathy and mentalising (Gilbert, 2014), it is not clear if self-compassion is a construct of mentalising. It has been argued that to be self-compassionate there is a need to be able to mentalise (Gilbert, 2014), but the reverse has not been investigated. However, this is plausible as compassion-focused therapy would suggest that by increasing self-compassion, a person becomes more able to mentalise (Gilbert, 2014). In terms of the dimensions, self-compassion is likely to be an implicit process that is related to the self and could be a cognitive or affective activity. Therefore, it is possible that the four-construct theory developed by Choi-Kain and Gunderson (2008) could be expanded to include a fifth construct of self-compassion, which will be explored in this study.

Mentalising and Adolescents

The ability to mentalise is believed to develop throughout childhood and adolescence, with this being determined by the quality of a child's early attachments, relationships and social learning environment (Bateman & Fonagy, 2016). The child begins to develop a mentalising predisposition through the attachment relationship. This has been supported through research that has found that securely attached children outperform insecurely attached children on mentalising tasks (Fonagy, Gergely & Target, 2007; Sharp & Fonagy, 2008), which would suggest that there is something key about the attachment relationship in facilitating the development of mentalising. However, it is not the only component thought to be involved in the development of mentalising, and Fonagy and Allison (2011) would argue that it is the interplay between the diverse social experiences and environments in a child's life that leads to the mentalising that is associated with adults.

This would suggest that mentalising is a developmental process through childhood. Support for this theory has come from neuroimaging research. An area of the brain found in the dorsal medial prefrontal cortex (mPFC) has been associated with mentalising and has been shown to still be in development during the adolescent

period (Blakemore, den Ouden, Choudhury & Frith, 2007). In addition, adolescents and adults have been shown to perform differently on mentalising tasks, with associations made to this same part of the brain (Wang, Lee, Sigman & Dapretto, 2006). Thus, it would appear that mentalising may not be fully developed by adolescence.

The above theory has been developed within an adult population and specifically commenced within patients with borderline personality disorder (Bateman & Fonagy, 2004). However, this theory has now expanded to other diagnoses (Bateman & Fonagy, 2012), and of interest to this study, adolescents (Locke, 2016; Rossouw & Fonagy, 2012). Yet no research has been done to see if mentalising looks the same in adolescents as it does in adults. As the above research would suggest that mentalising is still developing during adolescence there is a need to explore whether this theory is the same for adolescents. Thus, the aim of the study will be to understand the constructs theoretically assumed to be related to mentalising specifically in adolescence.

Measuring Mentalising in Adolescence

Several measures already exist to measure mentalising. For example, Fonagy has developed measures of reflective functioning that he believes can assess a person's ability to mentalise (Fonagy, Target, Steele & Steele, 1998; Fonagy et al., 2016). However, it is possible that these measures are not sensitive enough to measure the constructs contained within mentalising. These measures were developed based on the original theory (Sharp et al., 2009) and since then there has been considerable development including the consideration of the underlying constructs involved in mentalising (Choi-Kain & Gunderson, 2008). Thus, it is possible that these measures are not capturing mentalising fully.

Furthermore, it has been suggested that problems seen in the ability to mentalise are related to the unique difficulties within the constructs (Fonagy, Bateman & Bateman, 2011). Therefore, to be able to understand an individual's mentalising ability, there is a need to assess their mentalising profile (i.e. their strengths and difficulties across the constructs), which reflective functioning measures may not achieve.

In addition, whilst an adolescent version of the reflective functioning questionnaire has been developed (Reflective Functioning Questionnaire for Youths (RFQY); Sharp et al, 2009), it was constructed by adapting the adult version (Ha, Sharp, Ensink, Fonagy

& Cirino, 2013). As previously mentioned this may be a problem due to evidence suggesting this area of the brain is still developing in adolescence (Blakemore, 2008). Therefore, if adolescent mentalising is different to adult mentalising, it is unlikely that a measure developed with adults will be valid.

Mentalising and Adolescent Mental Wellbeing

Adult research reveals that compromised mentalising skills are associated with both internalising and externalising disorders, including: eating disorders (Rothschild-Yaker, Levy-Shiff, Fridman-Balaban, Gur & Stein, 2010; Caglar-Nazali et al, 2014), proactive aggression and psychopathic traits (Taubner, White, Zimmermann, Fonagy & Nolte, 2012), major depressive disorder (Fischer-Kern et al, 2013), borderline personality disorder (Fischer-Kern et al, 2010; Sharp et al, 2011), and offending behaviour (Fonagy & Levinson, 2004). The findings from these studies would suggest that difficulties with mentalising are associated with greater mental health problems.

Similarly, among adolescents there is some evidence that a similar pattern is present (see review above, Badoud et al., 2015; Bo & Kongerslev, 2017; Murri et al., 2017; Sharp et al., 2011; Taubner, White, Zimmermann, Fonagy & Nolte, 2013; Taubner, Zimmermann, Ramberg & Schröder, 2016). Hence, there is a need to understand mentalising specifically in adolescence, and its association with adolescent mental health. However, as the focus of this study was on the model of mentalising for adolescence it was decided that this study would be limited to a small number of measures considering mental wellbeing. This allowed the study to be conducted on a larger scale which was required for the analysis and reduced the demand on the adolescents completing the questionnaire.

Research Hypotheses

1. It is hypothesised that there will be relationships between the constructs
2. It is hypothesised that the RFQY will not correlate with the constructs in the same way
3. It is hypothesised that the adolescent model of mentalising will be different to the adult model of mentalising
4. Lastly, it is hypothesised that the adolescent model of mentalising will negatively correlate with the measures of mental wellbeing

Method

Participants and Sampling

Participants were recruited from high schools in the North East of Scotland between October 2017 to January 2018. Ethical approval was gained from the Clinical and Health Psychology (University of Edinburgh) Ethics Committee and approval to research in schools was granted by the local authority. Invitations were sent to eight schools and three schools agreed to participate. Only adolescents who had a learning disability or struggled to read English were not invited to participate due to the questionnaire nature of the study.

Up to 805 pupils were potentially available to participate in the project. 495 pupils (61.49%) participated in the study, with lost data being attributed to several classes cancelled, pupils not attending on the day of data collection, and pupils choosing not to participate. 49.7% of the sample were male, with a mean age of 13.4 years (range 12-16 years). Age data was not available for 17 participants and gender was missing for 23 participants.

Measures

Mindfulness: The Child and Adolescent Mindfulness Measure (CAMM; Greco, Baer & Smith, 2011) is a 10-item questionnaire rated on a 5-point Likert scale, that was designed to measure mindfulness in children and adolescents. Higher scores are related to higher levels of mindfulness. The measure has been found to have good internal consistency for adolescents ($\alpha=.80$; Bruin, Zijlstra & Bögels, 2014).

Mentalising: The Reflective Functioning Questionnaire for Youths (RFQY; Sharp et al., 2009) is an adolescent adapted version of the Reflective Functioning Questionnaire (Fonagy et al., 1998), and aims to assess mentalising abilities. It contains 46 questions rated on a 6-point Likert scale. The measure creates two subscales; scale A demonstrates good mentalising with scores in the mid-range and poor mentalising at either end, and scale B demonstrates better mentalising the higher the score. The RFQY also has an acceptable range of internal consistency ($\alpha=.71$) and evidence of good construct validity (Ha et al., 2013).

Self-Compassion: The Self-Compassion Scale – Short Form (SCS-SF; Raes, Pommier, Neff & Van Gucht, 2011) is the shortened version of the self-compassion scale (SCS; Neff, 2003), and has a strong correlation with the original measure ($r \geq 0.97$; Raes et al., 2011). It consists of 12 questions rated on a 5-point Likert scale. The SCS-SF has been tested with adolescents and found to be reliable and valid

(Muris, Meesters, Pierik & de Kock, 2015), with good internal consistency ($\alpha=.84$; Muris et al., 2015).

Psychological Mindedness: Balanced Index of Psychological Mindedness (BIPM; Nyklíček & Denollet, 2009) was designed to measure psychological mindedness. It consists of 14 items rated on a 5-point Likert scale, that load onto two factors; *Interest* in attending to one's psychological phenomena, and ability for *Insight* into these phenomena. The subscales have good internal consistency ($\alpha=.85$ and $.76$ respectively), good test-retest reliability ($r=.63$ and $.71$ respectively), and good construct validity ($r>.40$ with related constructs). While this scale has not been used with adolescents previously, it was preferred over alternatives as it was substantially shorter and viewed as likely being acceptable to adolescents.

Affect Consciousness: The Emotion Awareness Questionnaire – Revised (EAQ-R; Rieffe, Oosterveld, Miers, Terwogt & Ly, 2008) was designed to measure emotional awareness in children and adolescents. The EAQ-R contains six scales. However, for this study only three scales were used; differentiating emotions, bodily awareness, analysis of emotions. The other subscales were removed due to a focus either on cognitive aspects of affect or an overlap with the empathy construct. This left 17 questions rated on a 3-point Likert scale. The EAQ scales have shown acceptable internal consistency ($\alpha= .74$ to $.77$; Rieffe et al., 2008).

Empathy: The Interpersonal Reactivity Index (IRI; Davies, 1980) was developed with an adult population and aims to assess cognitive and affective empathy (Davies, 1980). The IRI consists of 28 items rated on a 5-point Likert scale. Four subscales are created from the questions; perspective taking and fantasy scales for the cognitive component, and empathetic concern and personal distress scales for the affective component. In addition, the IRI has been found to be an adequate measure for an adolescent population, with an acceptable internal consistency for the subscales ($\alpha=0.67$ to 0.87 ; Hawk et al., 2013).

Mental Wellbeing: The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) asks about several positive and negative attributes. It was developed to be completed by adolescents. It consists of 25 questions rated on a 3-point Likert scale, and creates five subscales: emotional problems, conduct problems, hyperactivity, peer problems, prosocial. The SDQ shows internal consistencies across the subscales ($\alpha=0.61$ to 0.82 ; Goodman, Meltzer & Bailey, 1998).

The Young Persons Clinical Outcomes in Routine Evaluation (YP-CORE; Twigg et al., 2009) was adapted from the CORE-OM (Clinical Outcomes in Routine Evaluation; Evans et al, 2000) to provide a brief version of the questionnaire that could be used with adolescents (Twigg et al, 2009). It aims to provide a measure that can capture a range of presenting problems related to mental health difficulties (Twigg et al, 2009). It contains ten questions rated on a 5-point Likert scale. The YP-CORE is found to show good levels of internal consistency ($\alpha=.85$; Twigg et al, 2009).

To make the project adolescent-friendly, the measures were incorporated into one questionnaire (Appendix G). The order of the measures was: CAMM, RFQY, SCS-SF, BIPM, SDQ, EAQ-R, YP-CORE, and IRI. Images and words of encouragement were included to maintain engagement. The start of the document contained the participant information sheet and consent form which were removed once the questionnaires were collected to anonymise the data. Finally, demographic information was asked (age, gender, number of social supports, and postcode), and there was space for comments at the end.

Procedure

The questionnaires were completed during a standard personal and social education class period (40-45minutes), with the data collection being run by the class teachers. Teacher instructions were provided (Appendix H) and opportunity was given to ask any questions to the lead researcher prior to the study date. Information sheets (Appendix D and E) and parent/guardian opt-out sheets (Appendix F) were circulated at least one week before the date of data collection. Pupils who wished to participate were provided with the questionnaire and reminded about their rights. An alternative task was available for those who did not wish to participate, and this was decided by the schools. Once the questionnaires were completed, participants were provided with a debrief/feedback form (Appendix I), and all the materials were collected and held securely within the school. The forms were then collected by the lead researcher and stored securely on an NHS site.

Planned Analyses

Analysis of Mentalising

Structural Equation Modelling (SEM) was chosen above other analyses as it allows the structural relationships between the variables and the latent variables to be investigated in a single analysis and thus reduces the error variance (Wang & Wang,

2012). Due to the large number of analyses required in this study this was considered particularly important, as a cumulative increase in error across the analyses could lead to inaccurate results. Principal Components Analysis (PCA) was also considered but while this type of analysis is able to control for error, it is limited to reducing variables into factors and loses the relational data that is possible in SEM (Lever, Krzywinski & Altman, 2017).

The missing completely at random test (MCAR; Little & Rubin, 2002) was conducted in SPSS V.24 to investigate missing data. Correlations between all the variables were conducted to consider the relationships between the measures.

Next confirmatory factor analyses (CFA) were conducted on the measures in Mplus (Muthén & Muthén, 1998-2017). All the questionnaires were treated as ordinal data and used maximum likelihood estimation (MLR), apart from the EAQ and SDQ which were treated as categorical data due to only have three response options. For these CFA's the weighted least squares mean variance adjusted (WLSMV) estimator was used. Model fit was assessed using Chi-Squared, the Root Mean Square Error of Approximation (RMSEA) with 90% confidence intervals, the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), and Standardised Root Mean Square Residual (SRMR) for ordinal analyses and Weighted Root Mean Square Residual (WRMR) for categorical analyses. Acceptable fit was evaluated as Chi-Squared non-significant (Wang & Wang, 2012), RMSEA $\leq .06$ (Hu and Bentler, 1999), CFI and TLI above .9 (Wang & Wang, 2012), SRMR below .08 (Hu and Bentler, 1999), and WRMR below 1.0 (Yu, 2002).

Factor loadings were accepted at ≥ 0.3 (Hair, Tatham, Anderson & Black, 1998). Any loadings below this were removed from the model. Modification indices were added to the model if they appeared to improve the fit in a substantial way and were theoretically justified (Brown, 2015).

The CFA's were then used to guide the structural equation model (SEM), which used the WLSMV estimator due to the categorical variable (EAQ). The same fit indices (minus the SRMR) and other parameters stated above were used.

Association between Mentalising and Mental wellbeing

A path analysis using SEM in MPlus was conducted to model the relationships between the variables and the model. Demographic variables were considered in this analysis as covariates.

An a-priori power calculation indicated that a sample of 204 would be needed for the model analysis, and a sample of 224 would be needed for the path analysis for these analyses to be powered.

Results

Attrition and Missing Data

The MCAR test (Little & Rubin, 2002) revealed that data was not missing at random ($\chi^2(29242)=30346.56$, $p<.05$). To manage this within MPlus, the full information maximum likelihood (FIML) approach was used which is believed to be less bias and more efficient than other more traditional techniques (Enders & Bandalos, 2001).

Relationships between the Measures

Correlations between the variables were explored and can be seen in *Table 1*. It should be noted that insight and differentiating emotions were both reversed scored (e.g. higher scores indicated lower insight). There appeared to be a difference between cognitive and affect measures. Negative correlations were often found between these measures, indicating that higher affect is associated with lower cognitive understanding, and vice versa.

In relation to the mental wellbeing measures, mindfulness, self-compassion, and analysis of own emotions were found to negatively correlate with the YP-CORE and SDQ (and positively correlate with prosocial), indicating lower mental wellbeing scores when adolescents scored higher on these measures. Bodily awareness was found to have similar correlations but showed no association with conduct problems and a negative correlation with prosocial. Insight was also found to negatively correlate with the mental wellbeing outcomes. However, as this is reversed scored this indicates that adolescents who have less insight into their own emotions have lower mental wellbeing scores. The same was found for differentiating emotions, however lower scores were found for prosocial. The other measures were found to have varying associations with the mental wellbeing measures.

The RFQY showed results that differed from above. No correlations were found between many of the measures and the two scales, and negative correlations were found between the measure and interest, bodily awareness and insight. In addition, only a small correlation was found between the YP-CORE and scale B, but expected directions were found for the SDQ scales. This may indicate less of an association with mental wellbeing difficulties and more of an association with behaviour and function.

Structural Equation Model (SEM) Analyses

Initial CFA's were conducted to analyse the individual measures. In some cases, low loading items were retained in order to maintain identification (SDQ, BIPM). Good fit

was established for several of the measures (CAMM, SCS-SF, BIPM, YP-CORE), however was not found for the RFQY, EAQ, IRI and SDQ.

The hypothesised model containing all the measures believed to be associated with mentalising (EAQ, IRI, RFQY, CAMM, SCS-SF, BIPM) was found to be a poor fit and thus was rejected. However, several of the subscales were found to significantly load onto a higher-order latent variable. These were CAMM, SCS-SF, Insight from BIPM, and Differentiating Emotions and Analysis of Own Emotions from EAQ. This refined model that included the aforementioned scales was tested and found to fit over most of the fit indices. However, as the chi-squared was significant the model had to be tentatively rejected ($\chi^2(290)=385.53$, $p=.0001$, CFI=.95, TLI=.94, RMSEA=.043 (.030-.053), $p>.05$, WRMR=.711). It is therefore possible that this refined model would fit if more of the variance was explained.

Table 1: Correlations between the measures

		CAMM	SCS-SF	BIPM		EAQ			IRI			RFQY			SDQ			YP-CORE		
				Ins	Int	DE	BA	AOE	PT	F	EC	PD	A	B	ED	CP	H	PP	PS	
	CAMM	1.00																		
	SCS-SF	.54**	1.00																	
BIPM	Ins	.40**	.41**	1.00																
	Int	.19**	.07	.06	1.00															
EAQ	DE	.60**	.53**	.52**	.14*	1.00														
	BA	.51**	.47**	.20**	.21**	.62**	1.00													
	AOE	-.13**	-.02	.04	-.51**	-.09	-.25**	1.00												
IRI	PT	-.14*	-.03	.12	-.43**	-.11*	-.25**	.50**	1.00											
	F	-.19**	-.20**	.01	-.32**	-.20**	-.35**	.31**	.40**	1.00										
	EC	-.22**	-.15**	.07	-.34**	-.19**	-.38**	.41**	.64**	.47**	1.00									
	PD	-.56**	-.49**	-.31**	-.17**	-.55**	-.56**	.14**	.26**	.37**	.35**	1.00								
RFQY	A	-.03	-.06	.08	-.16**	.04	-.01	.11*	.14*	.13*	.12*	.06	1.00							
	B	-.04	-.04	.19**	-.37**	.00	-.17**	.48**	.58**	.34**	.48**	.12*	.26**	1.00						
SDQ	ED	-.58**	-.59**	-.30**	-.03	-.59**	-.54**	-.05	.07	.14**	.16**	.60**	.05	.03	1.00					
	CP	-.20*	-.26*	-.24**	.17**	-.28**	-.09	-.18**	-.32**	-.07	-.24**	.12*	-.12*	-.32**	.27**	1.00				
	H	-.26**	-.27**	-.36**	.11*	-.29**	-.13**	-.16**	-.27**	-.10	-.18*	.15**	-.06	-.27**	.29**	.49**	1.00			
	PP	-.32**	-.29**	-.30**	.08	-.33**	-.16**	-.18**	-.19**	.06	-.21**	.23**	-.09	-.19**	.36**	.33**	.21**	1.00		
	PS	-.17**	-.10*	.08	-.36**	-.14**	-.27**	.33**	.51**	.35**	.62**	.22**	.11*	.44**	.15**	-.30**	-.21**	-.24**	1.00	
YP-CORE		-.60**	-.53**	-.46**	.04	-.62**	-.44**	-.10*	-.03	.12*	.06	.51**	-.09	-.11*	.64**	.38**	.40**	.49**	-.06	1.00

*NB: **, $p < .001$; *, $p < .05$; Ins, Insight; Int, Interest; DE, Differentiating Emotions, BA, Bodily Awareness; AOE, Analysis of Own Emotions; PT, Perspective Taking; F, Fantasy; EC, Empathetic Concern; PD, Personal Distress; A, Scale A; B, Scale B; ED, Emotional Difficulties; CP, Conduct Problems; H, Hyperactivity, PP, Peer Problems; PS, Prosocial Support; Insight and Differentiating Emotions are reversed scored*

Association between the refined model and mental wellbeing

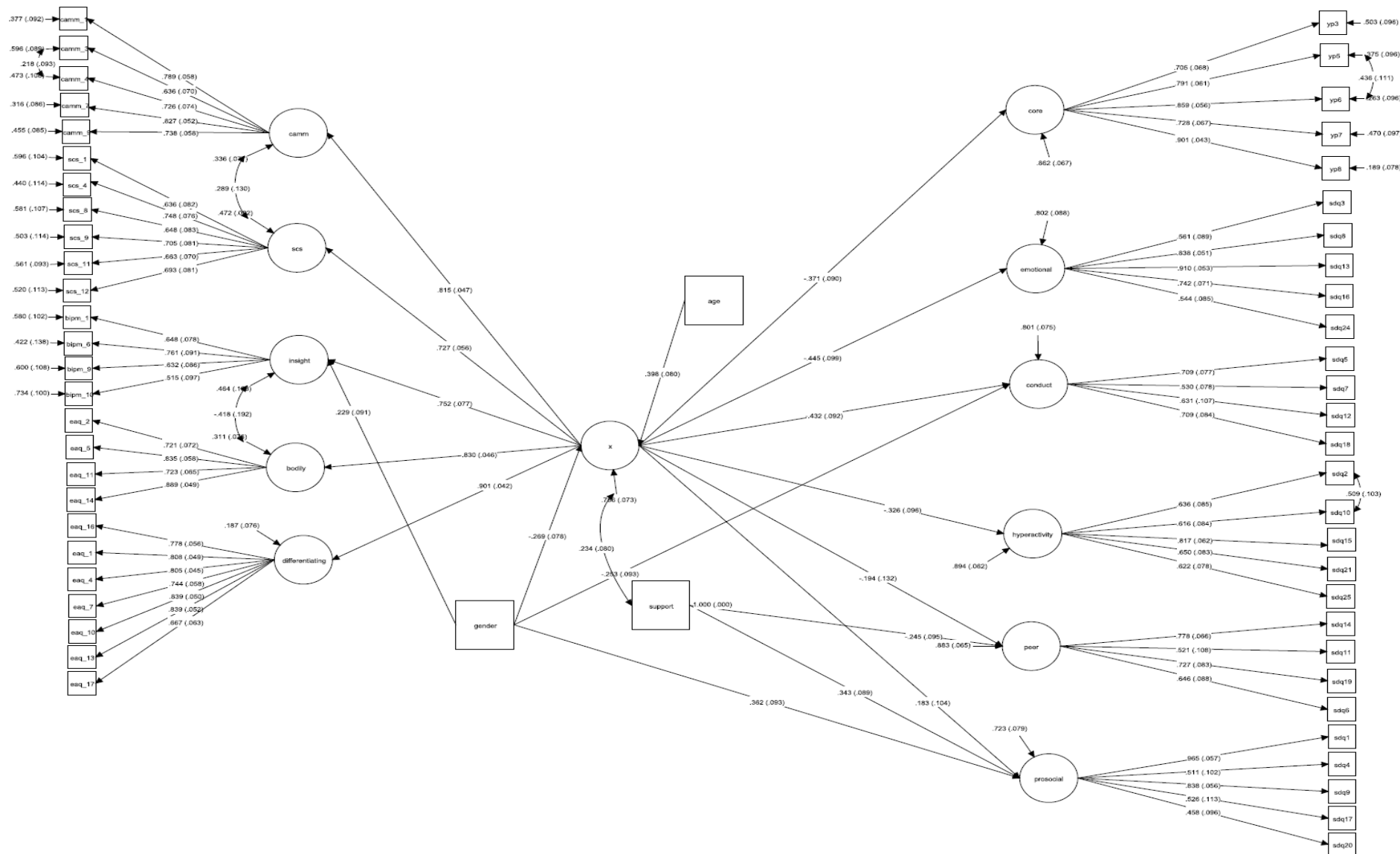
A negative association was found between the refined model and the YP-CORE ($\beta = -.371$, $p < .001$), and emotional problems ($\beta = -.445$, $p < .001$), conduct problems ($\beta = -.432$, $p < .001$), and hyperactivity ($\beta = -.326$, $p = .001$) on the SDQ, indicating a small to medium contribution. There was no association with peer problems or prosocial support.

Demographic variables (age, gender, number of reported social supports) were added to the refined model as covariates. Age was found to positively contribute to the model ($\beta = .119$, $p < .001$), with older adolescents having higher scores. In addition, gender had a negative contribution to the model ($\beta = -.296$, $p = .005$) and a positive contribution to the insight subscale ($\beta = .414$, $p = .024$). As insight is an inversely scored measure, higher scores on both was associated with being male.

No effect of gender was found for the YP-CORE but found for conduct problems ($\beta = -.253$, $p = .006$) and prosocial support ($\beta = .362$, $p < .001$) in the SDQ. Age was not found to affect the mental wellbeing measures. However, number of reported social supports was found to effect peer problems ($\beta = -.245$, $p = .010$) and prosocial support ($\beta = .343$, $p < .001$).

The model is shown in *Figure 1*.

Figure 1: Hypothesised 'self-awareness' structural equation model and its association with mental wellbeing outcomes and covariates



Discussion

The relationship between the variables

Many of the variables were found to correlate with one another as theorised by Choi-Kain and Gunderson (2008). However, it was often found that higher scores on measures of affect were associated with lower scores on measures of cognitive understanding which was unexpected. It is possible that these aspects (affective and cognitive) may interact differently in adolescence in comparison to adults. There is some evidence to support this finding from brain-imaging studies that suggest adolescents are more focused on emotional content of stimuli (Monk et al., 2003), which would indicate a greater focus of the affective aspects in comparison to cognitive one's. It is possible that through the brain development that happens during adolescence (Blakemore, 2008) a maturation of mentalising occurs that leads to an integration of these areas that is demonstrated in adulthood. Thus, it tentatively suggested from this research that cognitive and affective aspects are more separate in adolescence and become more integrated through this period.

RFQY (Reflective Functioning Questionnaire for Youths)

It was hypothesised that the RFQY would not correlate with the other variables as expected because it was developed on the original theory of mentalising and thus may not be capturing the underlying constructs. This was supported from the findings of this study. While the other constructs were related to each other, there were limited relationships between the RFQY and the constructs. In addition, certain relationships were not in a direction that would be expected. For example, interest, bodily awareness and insight¹ all negatively correlated with RFQY, when theoretically if the RFQY was performing as expected would show a positive correlation with these areas. Thus, it appears that because the RFQY was developed on Fonagy's (1991) original theory (Sharp et al., 2009) rather than the newer, broader theory, it is not capturing the underlying constructs theoretically involved in mentalising. Therefore, as hypothesised a level of caution is needed when considering the RFQY as it does not appear to be fully measuring mentalising based on the current theory.

Model of Mentalising

The adult model of mentalising was not supported in this study. This result was expected and indicates that the theory of mentalising that was developed with adults should be applied to an adolescent population with caution, as the theoretical

¹ Insight is reverse scored and therefore a positive correlation indicates a negative one.

constructs that are assumed to underpin mentalising do not appear to relate in the same way for this population. This finding supports research suggesting that mentalising is still developing through adolescence (Blakemore, 2008). However, this raises the question as to what is mentalising in adolescence. As argued above from the correlational data, it is possible that the dimensions that Bateman and Fonagy (2004) have suggested are still becoming integrated, and in particular the dimensions of affect/cognitive are still developing. This could explain why the adult model which contains all of these factors does not fit within an adolescent population.

However, whilst the adult model of mentalising was not found, a smaller refined model, containing a sub-selection of the measures; mindfulness, self-compassion, insight into personal psychological phenomena, differentiating emotions and bodily awareness of emotions was partially statically sound. All the subscales included contained an element of the self and related to an awareness of the mind, body and emotions, and thus appeared to capture adolescent 'self-awareness'. While this refined model had to be rejected due to the chi-squared being significant, the other fit indices suggested adequate fit, and thus it is likely that if more of the variance was understood, a well fitted model would be found. Improvements in the model could be achieved through better fitting measures as well as consideration into the other constructs that might theoretically be involved in 'self-awareness'. Previous research has suggested that in comparison with adults, adolescents rely more on self-reflective processes (Pfeifer, Lieberman & Dapretto, 2007), possibly indicating that the dimensions of self and other described in mentalising (Bateman & Fonagy, 2004) may not yet have integrated, which may explain the results found. Furthermore, this finding could provide support to the idea that the dimensions of mentalising (Bateman & Fonagy, 2004) are still in development during adolescence. Thus, there is a theme emerging from the research where the dimensions of mentalising (affect/cognitive, self/other, implicit/explicit) appear to be less integrated in adolescence than is found in adults.

The Association with Mental Wellbeing

Due to the potential of future research improving the 'self-awareness' model, analysis was also completed with the mental wellbeing outcomes and the demographic data. It was found that 'self-awareness' could predict most of the mental wellbeing outcomes. This was in a negative direction indicating that low scores for 'self-awareness' are predictive of greater mental wellbeing difficulties. This was in the same direction as had been predicted for mentalising, and therefore it is possible that

'self-awareness' may be related to mentalising or possibly could be an earlier stage of mentalising development. There was no association with peer problems or social support which could perhaps be related to this model having a greater focus on the self in comparison to others.

Overall, this study would tentatively suggest that 'self-awareness' is a risk factor for mental wellbeing difficulties, and it would also suggest that interventions that look to improve 'self-awareness' could be beneficial in treating mental wellbeing problems.

Implications for Theory, Research and Practice

The current study would suggest that mentalising in adolescents is different from adults and thus there is a need to understand this difference. The findings from this research have indicated that the dimensions of mentalising suggested by Bateman and Fonagy (2004) may yet to be fully developed in adolescence and this could explain the differences that were found. As proposed above, adolescence may be a time where the dimensions of mentalising (affect/cognitive, self/other, implicit/explicit) begin to integrate. However, this suggestion is tentative and therefore is in need of further exploration before any conclusions can be made.

In addition, this study used a cross-sectional design which limits the ability to make casual conclusions. Also, this design cannot show the development of mentalising through the adolescent period. To do this, longitudinal research will be needed so that changes in relationships between the constructs over time can be studied.

A new model of 'self-awareness' was revealed and further research is needed to explain more of the variance associated with this model to improve fit. In addition, there is a possibility that this model may be related to mentalising or is an earlier stage of mentalising and thus will be an important area to consider when investigating the development of mentalising in adolescence. In addition, due to the limitations identified with the RFQY which is often used as the measure for mentalising in, it would appear there is a need to develop a new measure specifically for adolescents. However, at present this should be a secondary step, as initially the concept of mentalising will need to be understood more fully in adolescence. Only then can an accurate measure of adolescent mentalising be developed.

Furthermore, this study would indicate that 'self-awareness' may be a risk factor for mental wellbeing difficulties. However, the measures chosen (SDQ and YP-CORE) can only give an indication for general mental wellbeing, and thus research is required

to test whether the same association is present for specific conditions and mental health in general. However, if this is found this will be an important area to focus on as it may have beneficial consequences to mental health interventions in adolescence.

Treatments focusing on mentalising have already been created for adolescents in the form of MBT-A (mentalisation-based therapy - adolescents; Rossouw & Fonagy, 2012). However, these interventions were created based on adult mentalising theory and as already discussed it appears that this does not equally apply to adolescents. Thus, there is a need to review these treatments through the understanding of adolescent mentalising and possible adolescent 'self-awareness' and make adaptations as appropriate. Research has already shown that mentalisation-based treatments are beneficial (Bateman & Fonagy, 2009; Rossouw & Fonagy, 2012) and thus it may not be a case of creating something new, but it will be important to establish if further improvements can be gained by revisiting these models through an adolescent informed lens.

Limitations of Research

Several limitations were identified in this study. Firstly, whilst the sample size was much higher than the a-priori calculations suggested, sample size is known to have an effect in SEM, particularly with certain estimators (Wang & Wang, 2012). Thus, for complicated models such as the one used in this study, it is often argued that a larger sample size will lead to a more robust model and therefore the sample size achieved in this study is viewed as adequate but could be improved on.

While every effort was made to choose questionnaires that were designed for an adolescent population, this was not possible for three of the questionnaires (SCS-SF, BIPM, IRI). Instead questionnaires were chosen that had evidence to support their acceptability with adolescents. However, it is possible that the meaning of some of the questions may have been difficult for adolescents to understand and thus there is a possibility that the validity of certain questions may have been compromised.

Finally, this study used a sample of adolescents who are based in the North East of Scotland. Whilst there was variety in the schools that participated, they are all positioned in a rural part of the country. In addition, while no ethnicity data was collected, data for the area shows one of the lowest percentages of minority ethnic groups in Scotland (Scottish Government, 2011). Thus, the findings of this research

may not apply to urban populations or ethnically diverse groups, and therefore there will be a need to repeat this study in these groups to check for generalisability.

Conclusions

The results of this study would suggest that the constructs related to mentalising interact differently in adolescence than has been found with adults. It is suggested that the dimensions of mentalising (Bateman & Fonagy, 2004) may still be in development during this period which could explain the results found. Additionally, the RFQY, which is often used to measure mentalising did not perform as expected, raising concerns about its ability to measure adolescent mentalising. However, a refined model containing a smaller number of the subscales was found and thought to measure adolescent 'self-awareness'. This was found to predict mental wellbeing outcomes, and therefore it appears that 'self-awareness' is a risk factor in adolescence. As the results of this study provide a new insight into adolescent mentalising, there is a need for future research to further explore the differences between adolescent and adult mentalising, as well as its association with mental health difficulties. There is also a need to further understand the development of mentalising through adolescence. In addition, there is a need to understand more fully adolescent 'self-awareness' as this has potential to provide another area that could be included in interventions for adolescent mental health.

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Appendix A: Research Proposal

Adolescent mentalising ability and psychopathology: The creation of a short mentalising measure for adolescents

Lead Researcher: Shona Battersby (Trainee Clinical Psychologist)

Supervisors: Dr Joanne Williams (Senior Lecturer; University of Edinburgh) and Dr David Huxtable (Clinical Psychologist; NHS Grampian)

Introduction

This project aims to explore the development of different facets of mentalising ability in adolescence, how these relate to each other, and whether they predict psychopathology. The research will bring together theories and methods from clinical and developmental psychology, and developmental psychopathology to measure mentalising ability, and has the potential to generate a short self-report measure that could be used in clinical practice and research.

Mentalising is an “imaginative mental activity that enables us to perceive and interpret human behaviour in terms of internal mental states (e.g. needs, desires, feelings, beliefs, goals, purposes and reasons)” (Bateman & Fonagy, 2012; page 4). Mentalising is a skill that is believed to still be under development during adolescence (Blakemore, 2008). However, research looking into mentalising has mainly been with adults. As this skill appears to still be developing, it is possible that findings from research conducted with adults will not be relevant to adolescents. Therefore, there is a need for research on mentalising in adolescents.

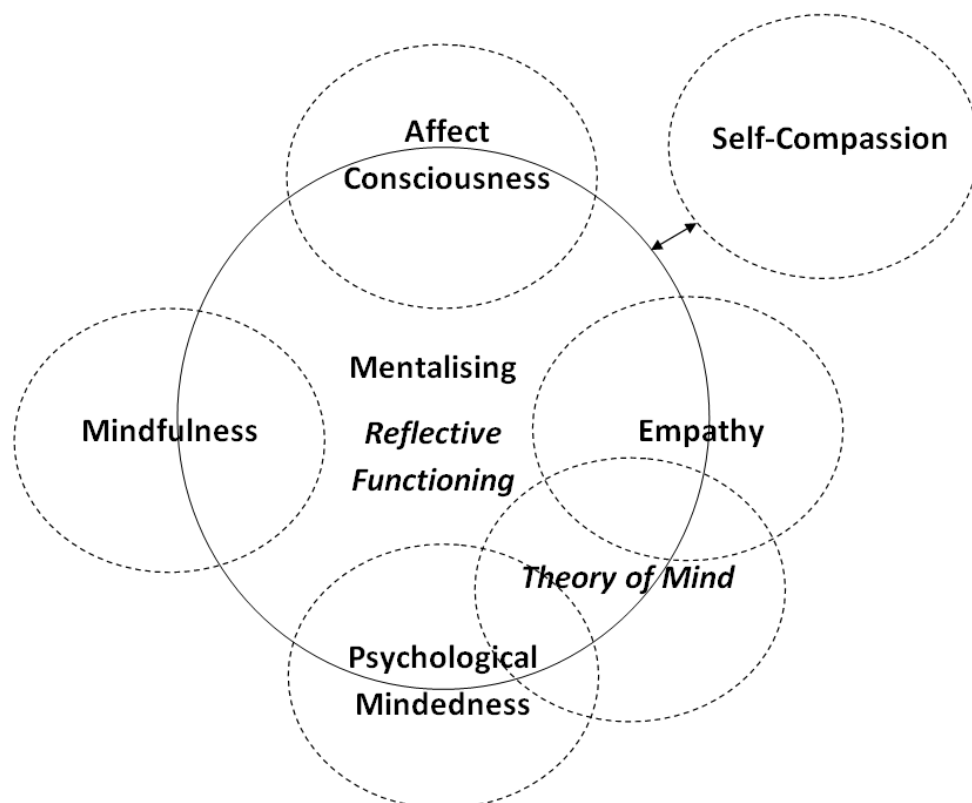
Despite the lack of evidence on adolescence, adult research reveals that compromised mentalising skills are associated with both internalising and externalising disorders, including: eating disorders (Ward, Ramsay, Turnbull, Steele, Steele & Treasure, 2001; Rothschild-Yaker, Levy-Shiff, Fridman-Balaban, Gur & Stein, 2010; Caglar-Nazali et al, 2014), proactive aggression and psychopathic traits (Taubner, White, Zimmerman, Fonagy & Nolte, 2012), major depressive disorder (Fischer-Kern et al, 2013), borderline personality disorder (Fischer-Kern et al, 2010; Sharp et al, 2011), and offending behaviour (Fonagy & Levinson, 2004).

Moreover, for adults higher levels of mentalising skills are potentially a protective factor for early abuse (Taubner & Curth, 2013) including sexual abuse (Ensink, Bégin,

Normandin & Fonagy, 2016), childhood adversity (Chiesa & Fonagy, 2014; Ostler, Bahar & Jessee, 2010), neglect (Borelli, Snively, Compare & Decio, 2015), and childhood trauma (Stein, Fonagy, Wheat, Kipp & Gerber, 2004).

In sum, mentalising appears to be a core cognitive skill/s that when reduced or impaired can lead to psychological difficulty, but when functioning may protect the individual from a traumatic beginning. Therefore, understanding and utilising mentalising in treatment could lead to improvements in mental health. This has been shown with adults in a number of studies that have used mentalisation based therapy (MBT; Bateman & Fonagy, 2006), with improvements being seen in borderline personality disorder (Bateman & Fonagy, 2008), self-harm (Rossouw, 2015; Rossouw & Fonagy, 2012), and depression (Rossouw & Fonagy, 2012).

Mentalising is a multidimensional construct (Choi-Kain & Gunderson, 2008), involving not only the understanding of others' intentions, beliefs and feelings, but also those of oneself (Górska & Marszał, 2014). Currently there is no consensus on what constructs make up mentalising. A number of relevant cognitive skills include: mindfulness, psychological mindedness, empathy, affect consciousness, self-compassion, theory of mind (ToM), and reflective functioning (Choi-Kain & Gunderson, 2008; Neff, 2003; Dolan & Fullam, 2004; Fonagy, Target, Steele & Steele, 1998). However, it is not clear



if all of these are involved in mentalising. At present the literature considers these individually, however theoretically these could all be linked to mentalising. This possibility has yet to be tested and therefore research is needed in order to understand the constructs of mentalising.

Figure 1: Theoretical representation of the constructs involved in mentalising adapted from Choi-Kain & Gunderson's (2008) model)

Figure 1 is an illustration of how these constructs might overlap to comprise mentalisation. This model is adapted from an original model by Choi-Kain & Gunderson (2008), with the addition of reflective functioning (RF), ToM, and self-compassion, due to their possible connections to mentalising.

However, measuring mentalising can be difficult due to this being a broad concept that is thought to include many different components (i.e. empathy, affective consciousness, mindfulness, psychological mindedness, theory of mind, and self-compassion). While a measure has already been created to assess mentalising (reflective functioning questionnaire), it is unclear if it considers all the aspects mentioned above. In addition, it was created using an adult population. Although it has been adapted for adolescents, it may not be accurately measuring mentalising as this skill has not yet fully developed.

Thus, the aims of the study will be to:

- Investigate the different constructs of mentalising within an adolescent population.
- Create an adolescent-appropriate screening tool to assess adolescent mentalising ability.
- Examine the relationships between mentalising ability and mental health difficulties in adolescents.

Study Objectives

Main Research Question:

Are different facets of mentalising ability in adolescence statistically related?

Secondary Research Questions:

Are there age, gender, socio-economic status, and social support variations in mentalising ability in adolescents?

Does mentalising ability predict mental health difficulties in adolescence?

Objective:

The creation of a short screening tool to measure the mentalising skills of adolescents

Study Design**Method**

The study will be conducted during a standard class period. Participants will be provided with a 'Participant Information Sheet' and 'Consent Form' which will explain the study and give them the opportunity to consent to participating. Parent/guardians will be given the opportunity to opt-out their child from the project. This will be done in advance and they will be provided with a 'Participant information sheet – Parent/Guardian' and an 'opt-out' sheet. Each school will contact the parents/guardians again before the study to remind them that they need to opt-out if they do not want their child participating. This will be done by the schools (not the researchers) and could take the format of a text, email, or something equivalent. The study aims to take a child-focused perspective meaning the child's view on the research is taken into account. Therefore the adolescent will be able to choose if they wish to participate in the research.

The consent form clearly states that the participant may withdraw from the study at any time and their data will be destroyed. This will also be explained by the teacher verbally before the participants start the study.

If the participant does not consent to the study they will be provided with materials for an alternative task that will be agreed on an individual basis with each school. This has been decided as the study will be taking place during a class. Therefore, it was felt that it was important that an alternative task was available to ensure the participant is able to freely consent to participating (i.e. if the alternative was to do nothing this might lead to pressure to participate in the study).

After completion of the questionnaire, participating pupils will be provided with a debriefing and feedback sheet ('Participant Debrief') which will give them an opportunity to indicate if they would like feedback on the results of the study.

Questionnaire and Scales

The study asks the participants to complete eight questionnaires. Where possible the standardised measures have been chosen that are specifically designed for adolescents as well as fitting with the aims of the study. Where this has not been possible (i.e. a standardised measure has not been developed to look at a specific concept in adolescents) an adult designed standardised measure has been chosen. However, consideration has been taken in this selection to try and choose a standardised measure that will hopefully work with adolescents. This has then been checked during an initial pilot and alterations have been made when any difficulties have been identified. Below are the nine standardised measures that will be included in the study:

The Reflective Functioning Questionnaire for Youths (RFQY; Sharp et al, 2009)

The Reflective Functioning Questionnaire was developed with adults (Fonagy, Target, Steele & Steele, 1998) and then adapted for an adolescent population by Sharp et al (2009). This was done by changing questions so they were more developmentally appropriate (Sharp et al, 2009); for example, "People's thoughts are a mystery to me" was replaced with "People's thoughts are secret to me". The aim of the measure is to assess the capacity to mentalise within the context of the attachment relationship (Fonagy, Target, Steele & Steele, 1998).

To date there has been few studies that have used the RFQY. However, the research conducted appears to indicate an acceptable range of internal consistency, with a Cronbach alpha of 0.71 (Ha, Sharp, Ensink, Fonagy & Cirino, 2013).

This scale was chosen for the current study as it was specifically designed for adolescents and aims to assess mentalising. In addition, it appears to have acceptable internal consistency and is therefore viewed as a reliable measure.

The Child and Adolescent Mindfulness Measure (CAMM; Greco, Baer & Smith, 2011)

The CAMM is a 10-item self-report questionnaire that was specifically designed to measure mindfulness in children and adolescents (Greco, Baer & Smith, 2011). The

measure has been found to have good internal consistency, with a Cronbach alpha of 0.80 for adolescents (Bruin, Zijlstra & Bögels, 2014).

This measure was selected because it was created for adolescents and provides a measure of mindfulness.

The Interpersonal Reactivity Index (IRI; Davies, 1980)

The IRI was developed with an adult population and aims to assess empathy (Davies, 1980). The IRI takes on a multidimensional view of empathy, resulting in four subscales; perspective-taking scale, fantasy scale, empathetic concern scale, and personal distress scale. Each of these scales will be used independently in the analysis. Through these scales the IRI aims to assess cognitive and affective components of empathy. In addition, the IRI has been found to be an adequate measure of empathy for an adolescent population, with an acceptable internal consistency for the sub-scales in this population, ranging from a Cronbach's alpha of 0.67 to 0.87 (Hawk, Keijsers, Branje, Van Der Graaff, Wied & Meeus, 2013).

The IRI was chosen as it is regularly used to measure empathy and has been assessed with adolescents and found to be acceptable (Hawk, Keijsers, Branje, Van Der Graaff, Wied & Meeus, 2013).

The Balanced Index of Psychological Mindedness (BIPM; Nyklíček & Denollet, 2009)

The BIPM is a self-report questionnaire that is designed to measure psychological mindedness (Nyklíček & Denollet, 2009) and was created using an adult population. It consists of 14 items that load onto 2 factors; *interest* in attending to one's psychological phenomena, and ability for *insight* into these phenomena. The BIPM was created due to a lack of validated, brief measures of psychological mindedness (Nyklíček & Denollet, 2009).

The BIPM subscales have been shown to have good internal consistency (Cronbach's $\alpha=.85$ and $.76$ respectively), as well as good test-retest reliability ($r=.63$ and $.71$ respectively). It also has good construct validity ($r>.40$ with related constructs).

While this measure has yet to be used with adolescents, review of the questions in relation to adolescent specific measures was felt to be similar. Therefore the BIPM

was chosen as a shorter measure was felt to be more acceptable to an adolescent population and would reduce the overall burden of the study.

The Emotion Awareness Questionnaire – Revised (EAQ; Rieffe, Oosterveld, Miers, Terwogt & Ly, 2008)

The Emotion Awareness Questionnaire – Revised (EAQ) was designed to measure emotional awareness in children and adolescents (Rieffe, Oosterveld, Miers, Terwogt & Ly, 2008). The EAQ measures the six scales that are viewed as components of emotional awareness; differentiating emotions, verbal sharing of emotions, not hiding emotions, bodily awareness, attending to other's emotions, analysis of emotions. Only differentiating emotions, bodily awareness and analyses of emotions subscales will be used as the other subscales were viewed to not be measuring affect consciousness (the construct this questionnaire is looking at).

The EAQ scales have shown acceptable Cronbach's Alpha in adolescents, ranging from .74 to .77 (Rieffe, Oosterveld, Miers, Terwogt & Ly, 2008).

The Self-Compassion Scale – Short Form (SCS-SF; Raes, Pommier, Neff & Van Gucht, 2011)

The SCS-SF is the shortened version of the self-compassion scale (SCS; Neff, 2003), and has a strong correlation with the original measure ($r \geq 0.97$; Raes, Pommier, Neff & Van Gucht, 2011). The SCS-SF has been tested with adolescents and found to be reliable and valid (Muris, Meesters, Pierik & de Kock, 2015)

The SCS-SF is found to have good internal consistency, reporting a Cronbach's alpha of 0.86 in adults (Raes, Pommier, Neff & Van Gucht, 2011), and 0.84 in adolescents (Muris, Meesters, Pierik & de Kock, 2015).

The SCS-SF was chosen as it has good internal consistency and has been tested specifically with adolescents. It is also a short questionnaire to complete.

The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997)

The SDQ is a self-report questionnaire that asks about a number of positive and negative attributes. It was originally created to be rated by parents or teachers (Goodman, 1997), but has now been adapted to be rated by the individual. The self-report version was developed to be completed by adolescents, and has been shown to be able to distinguish between a clinical and non-clinical population (Goodman, Meltzer & Bailey, 1998). The SDQ shows internal consistencies across the subscales

from questionable to good (Cronbach alpha of 0.61 to 0.82; Goodman, Meltzer & Bailey, 1998).

The SDQ was chosen as one of the measures to assess psychological distress as it is specifically for adolescents and has been shown to be able to distinguish between broad categories of psychiatric diagnosis (Goodman, Renfrew & Moullick, 2000).

The Young Persons Clinical Outcomes in Routine Evaluation (YP-CORE; Twigg, Barkham, Bewick, Mulhern, Connell & Cooper, 2009)

The YP-CORE was adapted from the CORE-OM (Clinical Outcomes in Routine Evaluation; Evans et al, 2000) to provide brief version of the questionnaire that could be used by adolescents (Twigg et al, 2009). The aim of this questionnaires was to provide a measure that would capture a range of presenting problems (Twigg et al, 2009). The YP-CORE is found to show good levels of internal consistency (Cronbach's alpha of 0.85; Twigg et al, 2009).

The YP-CORE was chosen as one of the measures of psychological distress as it was adapted for adolescents and has been found to be acceptable to complete (Twigg et al, 2016). It is also widely used as a routine clinical outcome tool and viewed as a good way to monitor psychological distress (Twigg et al, 2016).

Pilot

Prior to the commencement of the study a further pilot will be conducted with a number of adolescents who fit the inclusion criteria from one of the schools. The aim of this pilot will be to further test the documentation used in the study to make it more adolescent friendly. Changes anticipated from this pilot would be; alterations in the font of the documents, changing the images used in the documents, changing the order of the measures within the questionnaire document. If any changes were indicated from this pilot that would alter the documents submitted outwith these basic alterations, the documents would be resubmitted as amendments to the ethical panel (University of Edinburgh and Local Authority) for approval.

Data Storage

The physical data (i.e. the consent forms, questionnaires, feedback forms) will be kept in secure location in the school (this will be identified in the initial meetings in the school) until it is collected by the lead researcher (Shona Battersby). It will then be transferred from the schools where the data is collected to a locked filing cabinet (located in the Young People's Department in NHS Grampian) via a locked

suitcase/bag. The suitcase/bag and filing cabinet will only be accessed by the lead researcher. Once the questionnaires are scored, they will be destroyed. The feedback forms will be kept to identify participants who would like feedback. Once this has been provided the forms will be destroyed. The consent forms will be kept till the end of the study and then destroyed.

The electronic data (i.e. the dataset) will be kept on an encrypted memory stick that only the lead researcher will have access to. A backup dataset will be kept on the lead researchers NHS drive whilst the project is ongoing. An NHS drive has been chosen over the University system as the study is taking place in Aberdeen making it difficult to access the University systems. The excel drive that the data is kept on will be locked to ensure security of the data.

At the time of the analysis the data will be transferred into SPSS (Statistics Package for the Social Sciences). This dataset will be stored on the encrypted USB stick, with a backup being kept on the lead researchers NHS drive.

At the end of the study the anonymised dataset will be put onto the University of Edinburgh's Datashare.

Study Population

Number of Participants

Sample sizes were calculated for the three questions to ensure the sample would be big enough for all investigations planned.

Question 1: Are different facets of mentalising ability in adolescence statistically related (psychometrics of different measures)?

This question will be answered using an exploratory factor analysis (EFA). It was decided that a ratio of 10:1 for subject to items was chosen as research suggests this is the most commonly used ratio to determine sample size for EFA (Costello & Osborne, 2005).

Taking into consideration whether the subscales or the total score will be used for each questionnaire, there will be 21 variables. Therefore, a minimum sample size of 210 will be required in this study.

Question 2: Are there age, gender, socio-economic, and social support variations in mentalising ability in adolescents?

An a-priori sample size calculation was completed for the planned multiple regression analyses. There will be four predictors (age, gender, SES, social support), the power was set to 0.8 and the p value was set to 0.05. A medium effect size was chosen as there does not appear to be papers that accurately provide guidance on this. Using a sample size calculation (www.danielsoper.com/statcalc3/default.aspx) a sample size of 84 was established.

Question 3: Does mentalising ability predict mental health difficulties in adolescence?

The analysis for this question will vary depending on the results of the first question; i.e. it will include the measures that are found to relate to mentalising. However, for the purpose of this a-priori sample size calculation it will be assumed that all the measures are included in the analysis. This would give 27 predictors for the multiple regression (taking into account whether the subscales or total score are being used). For the calculation the power was set to 0.8 and the p value was set to 0.05. A medium effect size was chosen as there does not appear to be research specifically looking at mentalising and mental health difficulties in general in adolescents. Using a sample size calculation (www.danielsoper.com/statcalc3/default.aspx) a sample size of 178 was established.

In conclusion, considering the a-priori sample sizes calculated for the three questions, a minimum sample size of 210 will be aimed for in this study, although there will be focus on exceeding this number.

Recruitment

The study will recruit participants from Secondary schools. Local Authority approval will be gained and then the head teachers of the high schools will be contacted to establish interest in the project. A meeting will be held with each interested high school to establish the best way to recruit participants. This will ensure that individuals are able to independently choose to participate and do not feel pressurised to take part. This will be done on an individual school basis to fit in with the different timetables each school has, so the project does not interfere with other commitments (e.g. holidays and exams).

Inclusion and Exclusion Criteria

Inclusion Criteria:

- Aged 12-16

- Able to give informed consent

Exclusion Criteria:

- Autism Spectrum Disorder (ASD)
- Intellectual Disability
- English not the first language

Individuals with a diagnosis of ASD have been shown to show predictable deficits in mentalising (White, Hill, Happé & Frith, 2009). This deficit could lead to anomalies in the data and therefore it has been decided that this should be an exclusion criterion.

The standardised measures that have been chosen for the study have not been assessed for use with individuals with an intellectual disability and may not be suitable for this population due to cognitive and reading demands.

The standardised measures also have not been tested with individuals where English was not the first language and therefore these individuals will be excluded in case this affects the quality of the data.

Description of Analysis

For Question 1 (Are different facets of mentalising ability in adolescence statistically related?) an exploratory factor analysis will be used to see how questions from the questionnaires (RFQY, CAMM, IRI, PMS, EAQ, SCS-SF, SDQ, YP-CORE) load onto mentalising. This will establish which questions from the questionnaires are important when trying to measure mentalising. Although theoretically aspects of these questionnaires should load onto a factor which will be mentalising, there is currently no evidence supporting this. Therefore, this analysis will establish if there is this underlying structure. If found, this information will then be used to create a short screening tool of mentalising skills specifically for adolescents.

For Question 2 (Are there age, gender, socio-economic, and social support variations in mentalising ability in adolescents?) a linear multiple regression analysis will be used to establish if any of the chosen variables are influencing mentalising ability. Post hoc analyses will be conducted on any significant results (apart from gender due to this variable being dichotomous) to establish when the relationship between the variable and mentalising ability becomes significant.

For Question 3 (Does mentalising ability predict mental health difficulties in adolescence?) a multiple regression will be used to establish the predictive power of

adolescent mentalising ability on mental health difficulties. This analysis will be based on the results from the first analysis (Question 1), in that only scales found to be related to mentalising ability will be used.

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Appendix B: University Ethical Approval

University of Edinburgh, School of Health in Social Science



RESEARCH ETHICS APPLICATION (REA)

The forms required when seeking ethical approval in the School of Health and Social Sciences have now been merged into this single electronic document. The sections you are required to complete will depend on the nature of your application. Please start to complete the form from the beginning and proceed as guided. On completion the **entire** document should be submitted electronically to your section's ethics tutor using the email addresses detailed on the final page.

FORM OVERVIEW	
FORM	COMPLETION
Project registration form	: Compulsory for all applications
Document checklist	: Compulsory for all applications
Level 1 Self Audit form	: To be completed for all research studies that are not subject to review by an external UK based ethical committee.
Level 2 /3 ethical review form	: To be completed when indicated by responses on the Level 1 form.
Level 4 ethical review form	: applies to research which is potentially problematic in that it may incorporate an inherent physical or emotional risk to researchers or participants, or involve covert surveillance or covert data collection.

PROJECT REGISTRATION FORM

This form is the first stage in applying for University ethical approval and should be completed prior to the commencement of any research project. Applications submitted without appropriate documentation will be returned.

Ethical approval is required for all projects by staff or students conducting research, or similar.

Applicants should familiarise themselves with the School's Research Ethics Policy prior to completion.

PR1	Name of Applicant:	Shona Battersby
PR2	Name of Supervisor²:	Dr Joanne Williams
PR3	Project Title:	Adolescent mentalising ability and psychopathology: The creation of a short mentalising measure for adolescents
PR4	Subject Area (section of school):	Clinical and Health Psychology
PR5	If student, type of assessed work that this application relates to:	Doctoral Thesis
PR6	Planned date of project submission:	May 2018
PR7	Date ethics application submitted:	
PR8	(Date complete information submitted if different):	
PR9	IRAS Approval Number if applicable:	
<i>The following to be completed by ethics administrator</i>		
PR10	<i>Date of initial response to applicant:</i>	
PR11	<i>Date of final approval:</i>	
PR12	<i>Amendments Requested Date:</i>	
PR13	<i>Amendments Approved Date:</i>	
PR14	<i>Reviewer 1</i>	
PR15	<i>Reviewer 2</i> <small>Level 2/3/4 only</small>	
DOCUMENTATION CHECKLIST		

1) ^{DC1} **Does your research project require extraction or collection of data abroad? (✓)**

<input checked="" type="checkbox"/>	No	<i>If 'No' Skip to Q2</i>
<input type="checkbox"/>	Yes	Local Ethical review needed, please confirm (✓) electronic attachment of:

² Not applicable to staff members.

	Application to ethical review panel in country of data collection (in English) + copy of letter of approval	
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2) ^{DC2} For the purposes of this research study, will you access identifiable³ information on any NHS patient? (✓)

x	No	If 'No' Skip to Q3		
	Yes	Please confirm (✓) electronic attachment of:	Caldicott Guardian approval for use of NHS data (or confirmation that it is not required)	

3) ^{DC3} Does the project require ethical review by an external UK committee e.g. NHS REC or Social Work?

x	No	If 'No' Skip to Q4		
	Yes	Please confirm (✓) electronic attachment of:	NHS REC (IRAS) /other application form + copy of letter of approval	
NOTE: You are <u>not</u> required to complete University ethical review forms. Skip to Q6				

^{DC4} Unless you answered 'yes' to 3, you must also obtain ethical approval through the University of Edinburgh process. Please submit a Level 1 form (with 'Methods' summary) and, if indicated, a level 2/3/4 form as well.

	Forms: level	Summary of 'Methods'
SHSS Ethics paperwork	1	2/3/4
Please indicate the SHSS Ethics forms completed herewith (✓):	x	x

4) ^{DC5} If you have completed the Level 2/3/4 form please list any additional documentation provided in support of your application (E.g. Disclosure, consent form, participant information, GP letters etc., Data Storage Plan)

Documentation Name ^{These should reflect content}	(✓)	Documentation Name	(✓)
Participant information	X	Parent/Guardian Consent Form	X

³ 'Identifiable information' refers to information that would allow you to know, or be able to deduce, the identity of a patient. The most common examples of this would be accessing medical records or similar, or accessing a database that includes patients' names.

Teacher Instruction Sheet	X	Participant Debriefing and Feedback Sheet	X
Parent/Guardian Participant Information	X	Questionnaire Pack (containing consent form)	X

5) Signatures

Shona Battersby
09/12/2016

Applicant's Name
Date signed

Applicant's Signature

Dr Joanne Williams
09/12/2016

Supervisor⁴ Name
Date signed

Supervisor's Signature

Please return an electronic copy of your UoE HSS Ethics Application Form (in its entirety) to your Section's Ethics Officer, accompanied by electronic copies of additional documents indicated above. We do not accept paper documentation; please scan all documents into electronic formats. Please keep a copy of all documentation for your records.

LEVEL 1 SELF AUDIT FORM

The audit is to be conducted by all staff and students conducting any type of empirical investigation, including research, audit or service evaluation.

The form should be completed by the principal investigator and, with the exception of staff, signed by a University supervisor.

⁴ Not required for staff applications.

SA1 **Primary Research Question:**

Please tick	What type of research are you planning to do?
	Study of a novel intervention or randomised clinical trial to compare interventions in clinical practice
x	Study utilising questionnaires, interviews or measures, including auto-ethnographic data.
	Study limited to working with routinely collected clinical data.
	Meta-analysis or systematic review.
	Research database containing non-identifiable information.

SA2 **Please provide a brief summary of your proposed study. Our interest is in areas of your methodology where ethical issues may arise so please focus your detail on areas such as recruitment, consent, describing your participants and the nature of their involvement, and data handling.**

Project Summary:

This project aims to explore the development of different facets of mentalising ability in adolescence, how these relate to each other, and whether they predict psychopathology. The research will bring together theories and methods from clinical and developmental psychology, and developmental psychopathology to measure mentalising ability, and has the potential to generate a short self-report measure that could be used in clinical practice and research.

Mentalising is an “imaginative mental activity that enables us to perceive and interpret human behaviour in terms of internal mental states (e.g. needs, desires, feelings, beliefs, goals, purposes and reasons)” (Bateman & Fonagy, 2012; page 4). Mentalising is a skill that is believed to still be under development during adolescence (Blakemore, 2008). However, research looking into mentalising has mainly been with adults. As this skill appears to still be developing, it is possible that findings from research conducted with adults will not be relevant to adolescents. Therefore, there is a need for research on mentalising in adolescents.

Despite the lack of evidence on adolescence, adult research reveals that compromised mentalising skills are associated with both internalising and externalising disorders, including: eating disorders (Ward, Ramsay, Turnball, Steele, Steele & Treasure, 2001; Rothschild-Yaker, Levy-Shiff, Fridman-Balaban, Gur & Stein, 2010; Caglar-Nazali et al, 2014), proactive aggression and psychopathic traits (Taubner, White, Zimmerman, Fonagy & Nolte, 2013), major depressive disorder (Fischer-Kern et al, 2013), borderline personality disorder (Fischer-Kern et al, 2010; Sharp et al, 2011), and offending behaviour (Fonagy & Levinson, 2004).

Moreover, for adults higher levels of mentalising skills are potentially a protective factor for early abuse (Taubner & Curth, 2013) including sexual abuse (Ensink, Bégin, Normandin & Fonagy, 2016), childhood adversity (Chiesa & Fonagy, 2014; Ostler, Bahar & Jessee, 2010), neglect (Borelli, Snavely, Compare & Decio, 2015), and childhood trauma (Stein, Fonagy, Wheat, Kipp & Gerber, 2004).

In sum, mentalising appears to be a core cognitive skill/s that when reduced or impaired can lead to psychological difficulty, but when functioning may protect the individual from a traumatic beginning. Therefore, understanding and utilising mentalising in treatment could lead to improvements in mental health. This has been shown with adults in a number of studies that have used mentalisation based therapy (MBT; Bateman & Fonagy, 2006), with improvements being seen in borderline personality disorder (Bateman & Fonagy, 2008), self-harm (Rossouw, 2015; Rossouw & Fonagy, 2012), and depression (Rossouw & Fonagy, 2012).

Mentalising is a multidimensional construct (Choi-Kain & Gunderson, 2008), involving not only the understanding of others' intentions, beliefs and feelings, but also those of oneself (Górska & Marszał, 2014). Currently there is no consensus on what constructs make up mentalising. A number of relevant cognitive skills include: mindfulness, psychological mindedness, empathy, affect consciousness, self-compassion, theory of mind (ToM), and reflective functioning (Choi-Kain & Gunderson, 2008; Neff, 2003; Dolan & Fullam, 2004; Fonagy, Target, Steele & Steele, 1998). However, it is not clear if all of these are involved in mentalising. At present the literature considers these individually, however theoretically these could all be linked to mentalising. This possibility has yet to be tested and therefore research is needed in order to understand the constructs of mentalising.

Figure 1: Theoretical representation of the constructs involved in mentalising adapted from Choi-Kain & Gunderson's (2008) model)

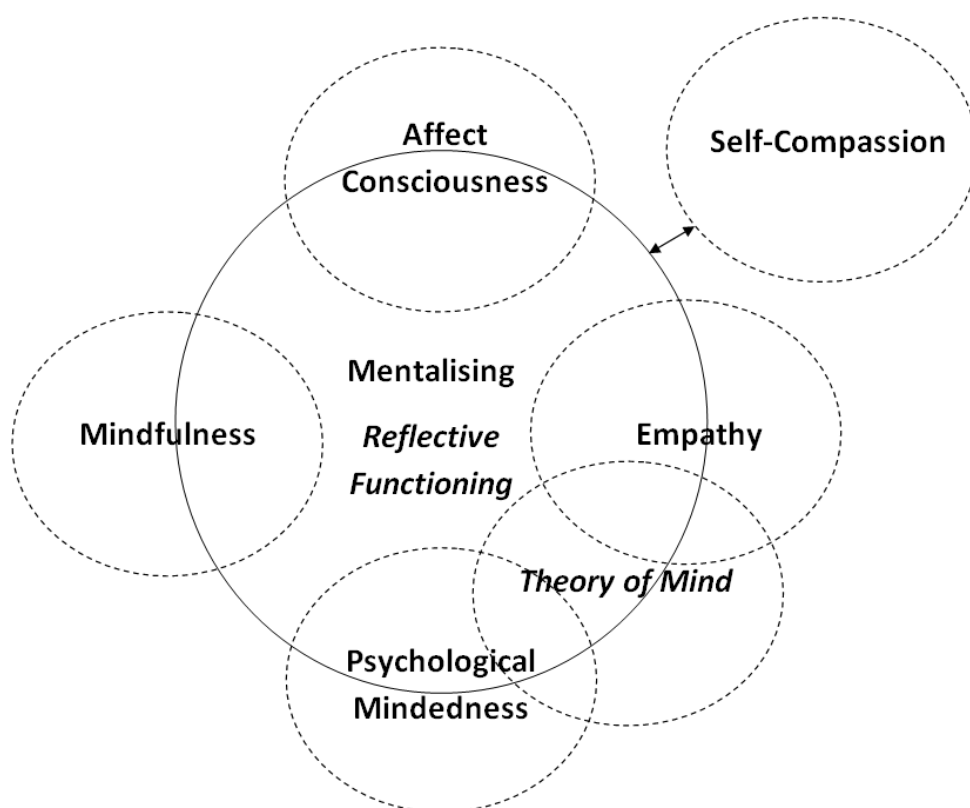


Figure 1 is an illustration of how these constructs might overlap to comprise mentalisation. This model is adapted from an original model by Choi-Kain & Gunderson (2008), with the addition of reflective functioning (RF), ToM, and self-compassion, due to their possible connections to mentalising.

However, measuring mentalising can be difficult due to this being a broad concept that is thought to include many different components (i.e. empathy, affective consciousness, mindfulness, psychological mindedness, theory of mind, and self-compassion). While a measure has already been created to assess mentalising (reflective functioning questionnaire), it is unclear if it considers all the aspects mentioned above. In addition, it was created using an adult population. Although it has been adapted for adolescents, it may not be accurately measuring mentalising as this skill has not yet fully developed.

Thus, the aims of the study will be to:

- Investigate the different constructs of mentalising within an adolescent population.
- Create an adolescent-appropriate screening tool to assess adolescent mentalising ability.
- Examine the relationships between mentalising ability and mental health difficulties in adolescents.

Main Research Question:

Are different facets of mentalising ability in adolescence statistically related?

Secondary Research Questions:

Are there age, gender, socio-economic status, and social support variations in mentalising ability in adolescents?

Does mentalising ability predict mental health difficulties in adolescence?

Objective:

The creation of a short screening tool to measure the mentalising skills of adolescents

Sample and sample recruitment

The study will recruit participants from Secondary schools. Local Authority approval will be gained and then the head teachers of the high schools will be contacted to establish interest in the project. A meeting will be held with each interested high school to establish the best way to recruit participants. This will ensure that individuals are able to independently choose to participate and do not feel pressurised to take part. This will be done on an individual school basis to fit in with

the different timetables each school has, so the project does not interfere with other commitments (e.g. holidays and exams).

The study will be conducted during a standard class period. Participants will be provided with a 'Participant Information Sheet' and 'Consent Form' which will explain the study and give them the opportunity to consent to participating. Parent/guardians will be given the opportunity to opt-out their child from the project. This will be done in advance and they will be provided with a 'Participant information sheet – Parent/Guardian' and an 'opt-out' sheet. Each school will contact the parents/guardians again before the study to remind them that they need to opt-out if they do not want their child participating. This will be done by the schools (not the researchers) and could take the format of a text, email, or something equivalent. The study aims to take a child-focused perspective meaning the child's view on the research is taken into account. Therefore the adolescent will be able to choose if they wish to participate in the research.

The consent form clearly states that the participant may withdraw from the study at any time and their data will be destroyed. This will also be explained by the teacher verbally before the participants start the study.

If the participant does not consent to the study they will be provided with materials for an alternative task that will be agreed on an individual basis with each school. This has been decided as the study will be taking place during a class. Therefore, it was felt that it was important that an alternative task was available to ensure the participant is able to freely consent to participating (i.e. if the alternative was to do nothing this might lead to pressure to participate in the study).

After completion of the questionnaire, participating pupils will be provided with a debriefing and feedback sheet ('Participant Debrief') which will give them an opportunity to indicate if they would like feedback on the results of the study.

Methods

- Teaching staff will explain the study (as per the 'Teacher Instructions' document).

- Participants will be asked to complete one questionnaire containing eight standardised measures. This should take about 45 minutes to complete (as indicated by pilot tests with adolescents).
- Once completed the participant will be given the 'Participant Debrief' document. This will thank them for participating and provide information on how they can access support if they should require this. It will also provide an opportunity to provide an email address and name if they would like to receive the results of the study.
- The completed questionnaire will be collected by the lead researcher (Shona Battersby). These will be transported to a locked filing cabinet in a locked suitcase.

Questionnaire and Scales

The study asks the participants to complete one questionnaire containing eight standardised measures. Where possible the standardised measures have been chosen that are specifically designed for adolescents as well as fitting with the aims of the study. Where this has not been possible (i.e. a standardised measure has not been developed to look at a specific concept in adolescents) an adult designed standardised measure has been chosen. However, consideration has been taken in this selection to try and choose a standardised measure that will hopefully work with adolescents. This has then been checked during an initial pilot and alterations have been made when any difficulties have been identified. Below are the nine standardised measures that will be included in the study:

- **The Reflective Functioning Questionnaire for Youths (RFQY; Sharp et al, 2009)**

The Reflective Functioning Questionnaire was developed with adults (Fonagy, Target, Steele & Steele, 1998) and then adapted for an adolescent population by Sharp et al (2009). This was done by changing questions so they were more developmentally appropriate (Sharp et al, 2009); for example, "People's thoughts are a mystery to me" was replaced with "People's thoughts are secret to me". The

aim of the measure is to assess the capacity to mentalise within the context of the attachment relationship (Fonagy, Target, Steele & Steele, 1998).

To date there has been few studies that have used the RFQY. However, the research conducted appears to indicate an acceptable range of internal consistency, with a Cronbach alpha of 0.71 (Ha, Sharp, Ensink, Fonagy & Cirino, 2013).

This scale was chosen for the current study as it was specifically designed for adolescents and aims to assess mentalising. In addition, it appears to have acceptable internal consistency and is therefore viewed as a reliable measure.

- **The Child and Adolescent Mindfulness Measure (CAMM; Greco, Baer & Smith, 2011)**

The CAMM is a 10-item self-report questionnaire that was specifically designed to measure mindfulness in children and adolescents (Greco, Baer & Smith, 2011). The measure has been found to have good internal consistency, with a Cronbach alpha of 0.80 for adolescents (Bruin, Zijlstra & Bögels, 2014).

This measure was selected because it was created for adolescents and provides a measure of mindfulness.

- **The Interpersonal Reactivity Index (IRI; Davies, 1980)**

The IRI was developed with an adult population and aims to assess empathy (Davies, 1980). The IRI takes on a multidimensional view of empathy, resulting in four subscales; perspective-taking scale, fantasy scale, empathetic concern scale, and personal distress scale. Each of these scales will be used independently in the analysis. Through these scales the IRI aims to assess cognitive and affective components of empathy. In addition, the IRI has been found to be an adequate measure of empathy for an adolescent population, with an acceptable internal consistency for the sub-scales in this population, ranging from a Cronbach's alpha of 0.67 to 0.87 (Hawk, Keijsers, Branje, Van Der Graaff, Wied & Meeus, 2013).

The IRI was chosen as it is regularly used to measure empathy and has been assessed with adolescents and found to be acceptable (Hawk, Keijsers, Branje, Van Der Graaff, Wied & Meeus, 2013).

- **The Balanced Index of Psychological Mindedness (BIPM; Nyklíček & Denollet, 2009)**

The BIPM is a self-report questionnaire that is designed to measure psychological mindedness (Nyklíček & Denollet, 2009) and was created using an adult population. It consists of 14 items that load onto 2 factors; *interest* in attending to one's psychological phenomena, and ability for *insight* into these phenomena. The BIPM was created due to a lack of validated, brief measures of psychological mindedness (Nyklíček & Denollet, 2009).

The BIPM subscales have been shown to have good internal consistency (Cronbach's $\alpha=.85$ and $.76$ respectively), as well as good test-retest reliability ($r=.63$ and $.71$ respectively). It also has good construct validity ($r>.40$ with related constructs).

While this measure has yet to be used with adolescents, review of the questions in relation to adolescent specific measures was felt to be similar. Therefore the BIPM was chosen as a shorter measure was felt to be more acceptable to an adolescent population and would reduce the overall burden of the study.

- **The Emotion Awareness Questionnaire – Revised (EAQ; Rieffe, Oosterveld, Miers, Terwogt & Ly, 2008)**

The Emotion Awareness Questionnaire – Revised (EAQ) was designed to measure emotional awareness in children and adolescents (Rieffe, Oosterveld, Miers, Terwogt & Ly, 2008). The EAQ measures the six scales that are viewed as components of emotional awareness; differentiating emotions, verbal sharing of emotions, not hiding emotions, bodily awareness, attending to other's emotions, analysis of emotions. Only differentiating emotions, bodily awareness and analyses of emotions subscales will be used as the other subscales were viewed to not be measuring affect consciousness (the construct this questionnaire is looking at).

The EAQ scales have shown acceptable Cronbach's Alpha in adolescents, ranging from .74 to .77 (Rieffe, Oosterveld, Miers, Terwogt & Ly, 2008).

- **The Self-Compassion Scale – Short Form (SCS-SF; Raes, Pommier, Neff & Van Gucht, 2011)**

The SCS-SF is the shortened version of the self-compassion scale (SCS; Neff, 2003), and has a strong correlation with the original measure ($r \geq 0.97$; Raes, Pommier, Neff & Van Gucht, 2011). The SCS-SF has been tested with adolescents and found to be reliable and valid (Muris, Meesters, Pierik & de Kock, 2015)

The SCS-SF is found to have good internal consistency, reporting a Cronbach's alpha of 0.86 in adults (Raes, Pommier, Neff & Van Gucht, 2011), and 0.84 in adolescents (Muris, Meesters, Pierik & de Kock, 2015).

The SCS-SF was chosen as it has good internal consistency and has been tested specifically with adolescents. It is also a short questionnaire to complete.

- **The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997)**

The SDQ is a self-report questionnaire that asks about a number of positive and negative attributes. It was originally created to be rated by parents or teachers (Goodman, 1997), but has now been adapted to be rated by the individual. The self-report version was developed to be completed by adolescents, and has been shown to be able to distinguish between a clinical and non-clinical population (Goodman, Meltzer & Bailey, 1998). The SDQ shows internal consistencies across the subscales from questionable to good (Cronbach alpha of 0.61 to 0.82; Goodman, Meltzer & Bailey, 1998).

The SDQ was chosen as one of the measures to assess psychological distress as it is specifically for adolescents and has been shown to be able to distinguish between broad categories of psychiatric diagnosis (Goodman, Renfrew & Maullick, 2000).

- **The Young Persons Clinical Outcomes in Routine Evaluation (YP-CORE; Twigg, Barkham, Bewick, Mulhern, Connell & Cooper, 2009)**

The YP-CORE was adapted from the CORE-OM (Clinical Outcomes in Routine Evaluation; Evans et al, 2000) to provide brief version of the questionnaire that could be used by adolescents (Twigg et al, 2009). The aim of this questionnaires was to provide a measure that would capture a range of presenting problems (Twigg et al, 2009). The YP-CORE is found to show good levels of internal consistency (Cronbach's alpha of 0.85; Twigg et al, 2009).

The YP-CORE was chosen as one of the measures of psychological distress as it was adapted for adolescents and has been found to be acceptable to complete (Twigg et al, 2016). It is also widely used as a routine clinical outcome tool and viewed as a good way to monitor psychological distress (Twigg et al, 2016).

Pilot

Prior to the commencement of the study a further pilot will be conducted with a number of adolescents from one of the local schools who fit the inclusion criteria. The aim of this pilot will be to further test the documentation used in the study to make it more adolescent friendly. Changes anticipated from this pilot would be; alterations in the font of the documents, changing the images used in the documents, changing the order of the measures within the questionnaire document. If any changes were indicated from this pilot that would alter the documents submitted outwith these basic alterations, the documents would be resubmitted as amendments to the ethical panel (University of Edinburgh and Local Authority) for approval.

Data Storage

The physical data (i.e. the consent forms, questionnaires, feedback forms) will be kept in secure location in the school (this will be identified in the initial meetings in the school) until it is collected by the lead researcher (Shona Battersby). It will then be transferred from the schools where the data is collected to a locked filing cabinet (located in the Young People's Department in NHS Grampian) via a locked suitcase/bag. The suitcase/bag and filing cabinet will only be accessed by the lead researcher. Once the questionnaires are scored, they will be destroyed.

The feedback forms will be kept to identify participants who would like feedback. Once this has been provided the forms will be destroyed. The consent forms will be kept till the end of the study and then destroyed.

The electronic data (i.e. the dataset) will be kept on an encrypted memory stick that only the lead researcher will have access to. A backup dataset will be kept on the lead researchers NHS drive whilst the project is ongoing. An NHS drive has been chosen over the University system as the study is taking place in Aberdeen making it difficult to access the University systems. The excel drive that the data is kept on will be locked to ensure security of the data.

Analysis

At the time of the analysis the data will be transferred into SPSS (Statistics Package for the Social Sciences). This dataset will be stored on the encrypted USB stick, with a backup being kept on the lead researchers NHS drive.

At the end of the study the anonymised dataset will be put onto the University of Edinburgh's Datashare.

Please circle your answer as appropriate:

	ETHICAL ISSUES		
SA3	<p>Bringing the University into disrepute</p> <p>Is there any aspect of the proposed research which might bring the University into disrepute?</p> <p>For example, could any aspect of the research be considered controversial or prejudiced?</p>	No	YES
SA4	<p>Protection of research subject confidentiality</p> <p><i>Will you make every effort to protect research subject confidentiality by conforming to the University of Edinburgh's guidance on data security, protection and confidentiality as specified in: www.ed.ac.uk/information-services/research-support/data-library/research-data-mgmt</i></p> <p><i>For example, there are mutually understood agreements about:</i></p> <ul style="list-style-type: none"> (a) non-attribution of individual responses; (b) Individuals, and organisations where necessary, being anonymised in stored data, publications and presentations; (c) publication and feedback to participants and collaborators; (d) With respect to auto-ethnographic work it is recognised that the subject's anonymity cannot be maintained but the confidentiality of significant others must be addressed. 	NO	Yes

SA 5	Data protection and consent <i>Will you make every effort to ensure the confidentiality of any data arising from the project by complying with the University of Edinburgh's Data Protection procedures (see http://www.ed.ac.uk/information-services/research-support/data-library/research-data-mgmt).</i> For example (a) Ensuring any participants recruited give consent regarding data collection, storage, archiving and destruction as appropriate; (c) Identifying information ⁵ , (e.g. consent forms) is held separately from data and is only accessible by the chief investigator and their supervisors; (e) There are no other special issues arising regarding confidentiality/consent. (f) That where NHS data is being accessed Caldicott Guardian approval has been obtained. IT IS NECESSARY TO GIVE THE HEAD OF SCHOOL'S NAME AS THE CONTACT PERSON IN CASE OF ANY COMPLAINT. PLEASE MAKE SURE THAT THIS LINK IS PROVIDED on any Information sheet/consent form: (http://www.ed.ac.uk/files/imports/fileManager/WEB%20Complaint%20Form.pdf)	N O	Yes S
SA 6	Duty to disseminate research findings Are there issues which will prevent all participants and relevant stakeholders having access to a clear, understandable and accurate summary of the research findings should they wish?	N O	Yes S
SA 7	Moral issues and Researcher/Institutional Conflicts of Interest <i>Are there any SPECIAL MORAL ISSUES/CONFLICTS OF INTEREST?</i> Examples include, but are not limited to: (a) Where the purposes of research are concealed; (b) Where respondents are unable to provide informed consent (c) Where there is financial or non-financial benefit for <i>anyone</i> involved in the research, or for their relative or friend. (d) Where research findings could impinge negatively or differentially upon participants or stakeholders (for example when selecting an unrepresentative sample of a larger population).	N O	Yes S

	<p>(e) Where there is a dual relationship between the researcher and subject? E.g. Where the researcher is also the subject's practitioner or clinician.</p> <p>(f) Where research involves covert surveillance or covert data collection.</p> <p>(g) Where routinely collected data is used for research alongside novel data.</p> <p>NOVEL DATA COLLECTION SHOULD NOT BE CONFLATED WITH ROUTINELY COLLECTED DATA. WHERE BOTH ARE BEING USED THIS NEEDS TO BE MADE CLEAR IN ANY COVERING LETTER, PARTICIPANT INFORMATION SHEET AND CONSENT FORM IN ORDER FOR INFORMED CONSENT TO BE POSSIBLE.</p>		
SA 8	<p>Potential physical or psychological harm, discomfort or stress</p> <p>Is there any foreseeable potential for:</p> <p>(a) significant psychological harm or stress for participants (b) significant physical harm or discomfort for participants? (c) significant risk to the researcher?</p> <p>Examples of issues/ topics that have the potential to cause psychological harm, discomfort or distress and should lead you to answer 'yes' to this question include, but are not limited to:</p> <p><i>Relationship breakdown; bullying; bereavement; mental health difficulties; trauma / PTSD; Violence or sexual violence; physical, sexual or emotional abuse in either children or adults; feedback of results from the project's assessments.</i></p>	No	YES

⁵ 'Identifiable information' refers to information that would allow you to know, or be able to deduce, the identity of a patient. The most common examples of this would be accessing medical records or similar, or accessing a database that includes patients' names.

SA 9	Vulnerable participants Will you be recruiting any participants or interviewees who could be considered vulnerable? Examples of vulnerable groups, the inclusion of which should lead you to answer yes to this question include, but are not limited to: Clients or patients of either the researcher OR the person recruiting subjects; Children & young people; people who are in custody or care for example, offenders, looked after children or nursing home resident; persons with mental health difficulties including those accessing self-help groups; auto-ethnographic researchers examining distressing topics.	N e	Y E S
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Assessment outcome:

SA10 **Have you circled any answers in BOLD typescript?** Please tick as appropriate

No	<input type="checkbox"/>	(i) Your responses on the completed self-audit confirm the ABSENCE OF REASONABLY FORESEEABLE ETHICAL RISKS. (ii) Please now read the guidance below and provide the required signatures. (iii) You are NOT REQUIRED to complete a level 2/3/4 application form. (iv) Please submit the UoE HSS Ethics Application Form electronic document (in its entirety) along with ALL additional required documentation, failure to do so will mean that your form is returned to you.
Yes	<input checked="" type="checkbox"/>	(i) Your responses on the completed self-audit indicate that we require further information to consider your application. (ii) Read the Guidance below and provide the required signatures. (ii) You ARE REQUIRED to complete a level 2/3/4 application form. (III) Please continue to the next part of this document where you will find the level 2/3/4 form

Subsequent to submission of this form, any alterations in the proposed methodology of the project should be reviewed by both the applicant and their

supervisor. If the change to methodology results in a change to any answer on the form, then a resubmission to the Ethics subgroup is required.

The principal investigator is responsible for ensuring compliance with any additional ethical requirements that might apply, and/or for compliance with any additional requirements for review by external bodies.

ALL forms should be submitted in electronic format. Digital signatures or scanned in originals are acceptable. The applicant should keep a copy of all forms for inclusion in their thesis.

<u>Shona Battersby</u>	_____	<u>09/12/2016</u>
Applicant's Name	Applicant's Signature	Date

_____	<u>Dr Joanne Williams</u>	<u>09/12/2016</u>
*Supervisor Signature ⁶	Supervisor Name	Date

*NOTE to Supervisor: Ethical review will be based only on the information contained in this form. If countersigning this check-list as truly warranting all 'No' answers, you are taking responsibility, on behalf of the HSS and UoE, that the research proposed truly poses no ethical risks.

LEVEL 2/3/4 ETHICAL REVIEW

- Complete only if indicated in the conclusion of your level 1 form.
- Applications will be monitored and audited to ensure that the School Ethics Policy and Procedures are being complied with and applicants contacted in cases where there may be particular concerns or queries.
- Research must not proceed before ethical approval has been granted. For this reason it is particularly important that applications are submitted well in advance of any required date of approval.

⁶ Not required for staff applications

If the answer to any of the questions below is 'yes', please elaborate and give details of how this issue is will be addressed to ensure that ethical standards are maintained. The response boxes will expand as you complete them. Forms that do not contain sufficient detail will be returned incurring delay.

BEFORE COMPLETING THE NEXT SECTION, PLEASE MAKE REFERENCE TO

<http://www.dataprotection.ed.ac.uk/activities/DPPolicyFINAL.htm>

<http://www.ed.ac.uk/schools-departments/records-management-section/data-protection/guidance-policies/research/research>

CONFIDENTIALITY AND HANDLING OF DATA

ER1 What information about participants'/subjects' data will you collect and use?

The study will collect the participant's age, gender, socio-economic status and social support. The remaining data will be the participant's answers on the questionnaire and this will be anonymous from the point of scoring (i.e. there will be no name on the questionnaire).

The participant's are provided with a feedback form that they can choose to complete if they would like the results of the study. This will contain they name, school and email address (if they have one).

ER2 What is the risk category of the information? (See definitions contained in <http://www.ed.ac.uk/schools-departments/records-management-section/data-protection/guidance-policies/encrypting-sensitive/data>)

In line with the 'policy on taking sensitive information and personal data outside the secure computing environment', this study is rated low risk. The data from participants will be anonymised, has no diagnostic characteristics, and will be securely held (as described in ER8).

ER3 Will the information include any of the following:

- (a) racial or ethnic origin
- (b) political opinions
- (c) religious beliefs
- (d) trades union membership
- (e) physical or mental health
- (f) sexual life
- (g) commission of offences or alleged offences

No

ER4 Who will have access to the raw data?

Only the lead researcher (Shona Battersby) and supervisors (Dr Joanne Williams and Dr David Huxtable) will have access to the raw data in a format that is participant identifiable. The dataset will be anonymous so it has the potential for Edinburgh Datashare.

ER5 What training will staff receive on their responsibilities for the safe handling of the data?

The lead researcher has received training from the NHS on safe data handling and has received lectures on this topic as well. The lead researcher will be attending a half day course on good clinical practice for researchers provided by the NHS on the 16th February 2017. The lead researcher will also consult with the supervisors (Dr Joanne Williams and Dr David Huxtable) of the project to ensure data is handled safely.

ER6 How will the confidentiality of the data, including the identity of participants, be ensured? Is there a strategy in place to replace disclosive identifiers of an individual or entity from the data?

The only information that will contain participant identifiable data will be the consent form and feedback form. The consent form will be removed from the questionnaires at the point of data collection and will always be stored in a locked container (i.e. locked location in the school, locked suitcase/bag, locked filing cabinet). The feedback form will also always be stored in a locked container. All other documents in the study (i.e. the questionnaires) will not have the name of the participant. Rather they will be identifiable via a participant number.

ER7 Will the information be transferred to, shared with, supported by, or otherwise available to third parties outside the University?

YES/NO If yes, explain why the third party needs to have access to the information and how the transfer of the information will be made secure. Attach a copy of the agreement you will use to regulate the transfer and use of data.

ER8 Describe the physical and IT security arrangements you will put in place for the data.

The physical data (i.e. the consent forms, questionnaires, feedback forms) will be kept in secure location in the school (this will be identified in the initial meetings in the school) until it is collected by the lead researcher. It will then be transferred from the schools where the data is collected to a locked filing cabinet (located in the Young People's Department in NHS Grampian) via a locked suitcase/bag. The suitcase/bag and filing cabinet will only be accessed by the lead researcher. Once the questionnaires are scored, they will be destroyed. The feedback forms will be kept to identify participants who would like feedback. Once this has been provided the forms will be destroyed. The consent forms will be kept till the end of the study and then destroyed.

The electronic data (i.e. the dataset) will be kept on an encrypted memory stick that only the lead researcher will have access to. A backup dataset will be kept on the lead researchers NHS drive during the project. An NHS drive has been chosen over the University system as the study is taking place in Aberdeen making it difficult to access the University systems. The excel drive that the data is kept on will be locked to ensure security of the data.

At the time of the analysis the data will be transferred into SPSS (Statistics Package for the Social Sciences). This dataset will be stored on the encrypted USB stick, with a backup being kept on the lead researchers NHS drive.

At the end of the study the anonymised dataset will be put onto the University of Edinburgh's Onedrive.

ER9 Does the system have a security code of practice under the University's Information Security Policy? (see <http://www.ed.ac.uk/information-services/about/policies-and-regulations/security-policies/security-policy>)

YES/NO

If NO, explain why one is not needed.

<p>The data will be used and stored in line with the University's Information Security Policy.</p>
<p>ER10 Will the data be used, accessed or stored away from the University premises?</p> <p>YES/NO If YES, describe the arrangements you have put in place to safeguard the data from accidental or deliberate access, amendment or deletion when it is not on University premises, including when it is in transit.</p>
<p>The study will be taking place in Aberdeen. A number of steps have been taken to ensure the safety of the data as detailed in section ER8.</p>
<p>ER11 Specify where the data files/audio/videotapes etc. will be retained after the study, how long they will be retained and how they eventually will be disposed of?</p>
<p>Only the dataset will be kept after the study. This will continue to be kept on the University of Edinburgh's Datashare. This will kept for 10 years, and after this time the data will be deleted from the Edinburgh Datashare.</p>
<p>ER12 How do you intend for the results of the research to be used?</p>

This project has a number of benefits to the field of adolescent mental health. Firstly, it aims to develop a greater understanding of mentalising specifically in adolescents. This will hopefully help to establish if different concepts that theoretically are related to mentalising demonstrate this in practice. If this is demonstrated then there is an opportunity within this study to create a small battery of questions that could assess an adolescents mentalising capacities.

If the creation of this tool is possible, it can then be used by the NHS to measure mentalising skills in adolescent clients accessing the service. This has the potential to support more person-centred therapy by identifying a specific area to work on in treatment that can lead to improvements in mental health (as has been found in the literature).

Additionally, the identification of good mentalising skills has been shown to be a protective factor for mental health difficulties. Therefore, establishing an individual's good mentalising skills could support therapy by establishing protective factors that can be utilised in treatment.

However, it is likely that this tool will be a quick and easy rough assessment of an adolescents mentalising ability. The greater understanding of how different theoretical concepts relate to mentalising will hopefully help in future work to develop an improved measure of mentalising specifically for adolescents.

Furthermore, the study will add to the literature on mentalising and psychopathology.

ER13 **Will feedback of findings be given to participants/subjects?**

YES/NO

If yes, how will this feedback be provided?

A number of avenues will be utilised to disseminate the findings of the study. As the study is with adolescents, it will be important to find ways to communicate the findings to this population. In order to do this the “consultation group” will be utilised to establish unique ways to communicate the information (for example the use of social media and technology), and the best language and format to use.

Opportunities to present the findings in the participating schools will be created. The “consultation group” will be asked about the format and content of this presentation to ensure it is accessible to the target population (adolescents).

Psychoeducation workshops will be offered to the schools and these will be utilised to disseminate the findings of the research.

A poster of the findings of the research will be created. This can then be used to disseminate the findings at conferences.

During the study, opportunities will be looked for where the research can be communicated to the academic community. This will include relevant conferences that have the potential for a poster or presentations. Opportunities to present in the NHS will also be sought.

ER14 **Using secondary data:**

YES/NO (a) Is this reuse compatible with what the data subjects were originally told about the use of their data? (e.g. were they told that it would be destroyed at the end of the study?)

YES/NO (b) Is it likely that someone could be identified from this data? (It is extremely difficult to make something totally anonymous, so even with secondary data there may be a need to apply security and access restrictions to it).

For more information regarding data linkage in evaluating interventions for the benefit of the population's health, please see:
<http://www.gov.scot/Topics/Statistics/datalinkageframework>

Your application at this level is likely to require additional documentation, for example a Data Storage Plan, consent forms or participant information sheets. Please return to the Documentation Checklist on page 2 to list your supporting documentation.

SECURITY-SENSITIVE MATERIAL

ER15 **Does your research fit into any of the following security-sensitive categories? If so, indicate which.**

YES/NO Commissioned by the military

YES/NO Commissioned under an EU security call

YES/NO Involve the acquisition of security clearances

YES/NO Concern groups which may be construed as terrorist or extremist

IF YOU HAVE ANSWERED YES TO ANY OF THESE CONTINUE TO ER16. IF YOU HAVE ANSWERED NO TO ALL OF THESE QUESTIONS MOVE TO ER21.

ER16 The Terrorism Act (2006) outlaws the dissemination of records, statements and other documents that can be interpreted as promoting or endorsing terrorist acts.

YES/NO Does your research involve the storage on a computer of such records, statements and other documents?

YES/NO Might your research involve the electronic transmission (e.g. as an email attachment) of records or statements?

IF YOU ANSWERED YES TO ANY OF THESE YOU ARE ADVISED TO STORE THE RELEVANT RECORDS OR STATEMENTS ELECTRONICALLY ON A SECURE UNIVERSITY FILE STORE. THE SAME APPLIES TO PAPER DOCUMENTS WITH THE SAME SORT OF CONTENT. THESE SHOULD BE SCANNED AND UPLOADED.

ACCESS TO THIS FILE STORE WILL BE PROTECTED BY A PASSWORD UNIQUE TO YOU AND YOUR SCHOOL RESEARCH ETHICS OFFICER. PLEASE INDICATE THAT YOU AGREE TO STORE ALL DOCUMENTS RELEVANT TO THESE QUESTIONS ON THAT FILE STORE:

YES/NO

ER17 Please indicate that you agree not to transmit electronically to any third party documents in the document store:

YES/NO

ER18 Will your research involve visits to websites that might be associated with extreme or terrorist organisations?

YES/NO

ER19 If you answer YES to ER18 you are advised that such sites may be subject to surveillance by the police. Accessing those sites from University IP addresses might lead to police enquiries. Please acknowledge that you understand this risk:

YES/NO

ER20 By submitting to the research ethics process, you accept that your School Research Ethics Officer and the convenor of the University's Compliance Group will have access to a list of titles of documents (but not the content of documents) in your document store. Please acknowledge that you accept this.

YES/NO

Countersigned by supervisor/manager:

Name:

Date:

RISKS TO, AND SAFETY OF, RESEARCHERS NAMED IN THIS APPLICATION

ER21 Do any of those conducting the research named above need appropriate training to enable them to conduct the proposed research safely and in accordance with the ethical principles set out by the College?

YES / NO

ER22 Are any of the researchers likely to be sent or go to any areas where their safety may be compromised, or they may need support to deal with difficult issues?

YES / NO

ER23 Could researchers have any conflicts of interest?

YES / NO

RISKS TO, AND SAFETY OF, PARTICIPANTS

ER24 Are any of your participants children or protected adults (protected adults are those in receipt of registered care, health, community care or welfare services). Anyone who will have contact with children or protected adults requires approval from Disclosure Scotland at <http://www.disclosurescotland.co.uk/>

Do any of the researchers taking part in this study require Disclosure Scotland approval? (✓)

Not applicable		*Ethical approval will be subject to documentation confirming Disclosure Scotland approval with this form.
Relevant researcher/s has current Disclosure Scotland approval through a current NHS employment contract	x	
Yes*		
ER25 Could the research induce any psychological stress or discomfort?		
YES / NO		
ER26 Does the research involve any physically invasive or potentially physically harmful procedures?		
YES / NO		
ER27 Could this research adversely affect participants in any other way?		
YES / NO		
RESEARCH DESIGN		
ER28 Does the research involves living human subjects specifically recruited for this research project <i>If 'no', go to section 6</i>		
YES / NO		
ER29 How many participants will be involved in the study?		

Sample sizes were calculated for the three questions to ensure the sample would be big enough for all investigations planned.

- Question 1: Are different facets of mentalising ability in adolescence statistically related (psychometrics of different measures)?

This question will be answered using an exploratory factor analysis (EFA). It was decided that a ratio of 10:1 for subject to items was chosen as research suggests this is the most commonly used ratio to determine sample size for EFA (Costello & Osborne, 2005).

Taking into consideration whether the subscales or the total score will be used for each questionnaire, there will be 21 variables. Therefore, a minimum sample size of 210 will be required in this study.

- Question 2: Are there age, gender, socio-economic, and social support variations in mentalising ability in adolescents?

An a-priori sample size calculation was completed for the planned multiple regression analyses. There will be four predictors (age, gender, SES, social support), the power was set to 0.8 and the p value was set to 0.05. A medium effect size was chosen as there does not appear to be papers that accurately provide guidance on this. Using a sample size calculation (www.danielsoper.com/statcalc3/default.aspx) a sample size of 84 was established.

- Question 3: Does mentalising ability predict mental health difficulties in adolescence?

The analysis for this question will vary depending on the results of the first question; i.e. it will include the measures that are found to relate to mentalising. However, for the purpose of this a-priori sample size calculation it will be assumed that all the measures are included in the analysis. This would give 27 predictors for the multiple regression (taking into account whether the subscales or total score are being used). For the calculation the power was set to 0.8 and the p value was set to 0.05. A medium effect size was chosen as there does not appear to be research specifically looking at mentalising and mental health difficulties in general in adolescents. Using a sample size calculation (www.danielsoper.com/statcalc3/default.aspx) a sample size of 178 was established.

In conclusion, considering the a-priori sample sizes calculated for the three questions, a minimum sample size of 210 will be aimed for in this study, although there will be focus on exceeding this number.

ER30 What criteria will be used in deciding on inclusion/exclusion of participants?

Inclusion Criteria:

- Aged 12-16

Exclusion Criteria:

- Autism Spectrum Disorder (ASD)
- Intellectual Disability
- English not the first language

Individuals with a diagnosis of ASD have been shown to show predictable deficits in mentalising (White, Hill, Happé & Frith, 2009). This deficit could lead to anomalies in the data and therefore it has been decided that this should be an exclusion criterion.

The standardised measures that have been chosen for the study have not been assessed for use with individuals with an intellectual disability and may not be suitable for this population due to cognitive and reading demands.

The standardised measures also have not been tested with individuals where English was not the first language and therefore these individuals will be excluded in case this affects the quality of the data.

ER31 How will the sample be recruited? (E.g. posters, letters, a direct approach- specify by whom.)

Local Authority approval will be gained in the first instance (unless the school is a private school. In this case the head teacher would be contacted directly). Once this has been obtained the head teachers of the high schools will be contacted to establish interest in the project. A meeting will be had with each interested high school to establish the best way to recruit participants. This will ensure that individuals are able to independently choose to participate and do not feel pressurised to take part. This will be done on an individual school basis to fit in with the different timetables each school has, so the project does not interfere with other commitments (e.g. holidays and exams).

Information sheets and opt-out forms will be sent to parents/guardians of the adolescents who fit the inclusion/exclusion criteria.

The adolescents who have consent from their parents/guardians to participate in the study will then be provided with information sheets and consent forms to invite them to participate in the study. Where possible the information sheets will be given to the adolescents a week prior to the study to give an opportunity for them to consider if they want to participate.

ER32 Will the study involve groups or individuals who are in custody or care, such as students at school, self-help groups, residents of nursing home?

YES / NO

ER33 Will there be a control group?

YES / NO

ER34 What information will be provided to participants prior to their consent? (e.g. information leaflet, briefing session)

Participants will be provided with a 'Participant Information Sheet' that will explain the study and a 'Consent Form'. The study will also be explained again by their teacher prior to starting the study. The teachers will have a guidance document ('Teacher Instructions') to provide the information needed for the teaching staff to do this.

ER35 Participants have a right to withdraw from the study at any time. Please tick to confirm that participants will be advised of their rights, including the right to continue receiving services if they withdraw from the study.

<p>ER36 Will it be necessary for participants to take part in the study without their knowledge and consent? (e.g. covert observation of people in non-public places)</p>
<p>YES / NO</p>
<p>ER37 Where consent is obtained, what steps will be taken to ensure that a written record is maintained?</p>
<p>Parents/guardians will be provided with information about the study and informed that they can opt-out their child from the study. They will be reminded by the school prior to the study that they need to opt-out their child if they do not want them participating,</p> <p>All consent forms will be kept in a locked filing cabinet until the end of the study (this is anticipated to be August 2018).</p> <p>If either the parent/guardian or the adolescent does not consent, they will not complete the questionnaire.</p>
<p>ER38 In the case of participants whose first language is not English, what arrangements are being made to ensure informed consent?</p>
<p>As the standardised measures that will be used in the study have not been tested on individuals where English is not the first language, this will be an exclusion criteria.</p>
<p>ER39 Will participants receive any financial or other benefit from their participation?</p>
<p>YES / NO</p>
<p>ER40 Are any of the participants likely to be particularly vulnerable, such as elderly or disabled people, adults with incapacity, your own students, members of ethnic minorities, or in a professional or client relationship with the researcher?</p>
<p>YES / NO</p>
<p>ER41 Will any of the participants be under 16 years of age?</p>
<p>YES / NO</p>
<p>ER42 Will any of the participants be interviewed in situations which will compromise their ability to give informed consent, such as in prison, residential care, or the care of the local authority?</p>

YES / NO
BRINGING THE UNIVERSITY INTO DISREPUTE
<p>ER43 If on the level one form you have answered YES that some aspect of the proposed research “might bring the University into disrepute”, please elaborate alongside how this might arise, and what steps will be taken by the researcher to mitigate and/or manage this, to minimise adverse consequences to the University.</p>

Subsequent to submission of this form, **both the applicant and their supervisor should review any alterations in the proposed methodology of the project.** If the change to methodology results in a change to any answer on the form, then a resubmission to the Ethics subgroup is **required**.

The principal investigator is responsible for ensuring compliance with any additional ethical requirements that might apply, and/or for compliance with any additional requirements for review by external bodies.

ALL forms should be submitted in electronic format. Digital signatures or scanned in originals are acceptable. The applicant should keep a copy of all forms for inclusion in their thesis.

<u>Shona Battersby</u>	_____	<u>09/12/2016</u>
Applicant's Name	Applicant's Signature	Date

_____	<u>Dr Joanne Williams</u>	<u>09/12/2016</u>
*Supervisor Signature ⁷	Supervisor Name	Date

*NOTE to Supervisor: Ethical review will be based only on the information contained in this form. If countersigning this check-list as truly warranting all 'No' answers, you are taking responsibility, on behalf of the HSS and UoE, that the research proposed truly poses no ethical risks.

⁷ Not required for staff applications

ER44 ISSUES ARISING FROM THE PROPOSAL

I can confirm that the above application has been reviewed by two independent reviewers. It is their opinion that:

a) The ethical issues listed below arise or require clarification:

1. In the consent form for the parent it states that if a child in a specific year in a school is found to have answered questions in a way that shows a high level of distress or some concern about them, the school will be told that there is an individual in that year who scores highly, but the individual will not be named. This is potentially problematic. Firstly, it raises the school's anxieties without allowing them to do something about it. Second, that item of consent appears on the consent form but not in the information sheet. If retained this needs to be made explicit in both parent and adolescent information sheets as well as the consent form. In addition, it may be required to have consultation with the schools who have agreed that this information would be useful. It might be a more ethical route simply to highlight the routes for any young people who feel distressed or at all concerned on completion of the study and to encourage them to talk to friends, parents, teachers etc, and to not disclose information about high scores.
2. In line with the above, the section on Confidentiality and Anonymity in the Information sheet will need revised.
3. As with above, the statement on the consent form is problematic: "You understand that if the standardised measures suggest that your child might be having difficulties that the school will be informed that someone in the year is having difficulties. However, we will not be able to identify the specific child" This is not specified in the information sheet. If this is the case the participant cannot give informed consent to this item.
4. Information sheet: "You are invited to participate in a research study on mentalising and its links to wellbeing. Mentalising is a skill that helps us to hold ourselves in mind. This study aims to understand this skill better in adolescents and how it might link to wellbeing." This is potentially confusing and should be reworded.
5. Independent contact and contact for complaints (Head of School) should be identified with contact details, rather than a link.
6. Parental information sheet contains specifiers relating to the child (e.g. "your child" not "you").

The applicant should respond to these comments in section 8 below.

Signature:

Position: Lecturer in Clinical Psychology, Ethics Tutor

Date: 10/01/16

ER45 APPLICANT'S RESPONSE (If required)

I have read and agree with the comments above. Below is a list of the changes/decisions made in relation to each point above:

1. After consideration of both potential options, it was decided that scores from the two questionnaires that may indicate distress (Strengths and Difficulties Questionnaires, and the Young Person's CORE) would not be communicated to the schools due to the above mentioned concern that they would not be able to do anything about this. Instead, the participants have been provided with support details that they can access if they were to experience any distress from the questionnaire.
2. In line with the above, the Confidentiality and Anonymity part of the information sheet has been revised.
3. In line with the above, the consent form and information forms have been altered.
4. The adolescent information sheet wording has been changed from "You are invited to participate in a research study on mentalising and its links to wellbeing. Mentalising is a skill that helps us to hold ourselves in mind. This study aims to understand this skill better in adolescents and how it might link to wellbeing."
To "You are invited to participate in a research study on mentalising and its links to wellbeing. Mentalising is a thinking skill that helps us to understand ourselves and others. This study aims to understand this thinking skill better in adolescents and how it might link to wellbeing."
5. The contact details for complaining have been added to all the forms.
6. Wording has been changes on the parental information sheet.

Signature:

Date: 17/01/2017

ER46 CONCLUSION TO ETHICAL REVIEW (if required)

The applicant's response to our request for further clarification or amendments has now satisfied the requirements for ethical practice and the application has therefore been approved.

Signature:

Position: Lecturer in Clinical Psychology, Ethics Tutor

Date:31/01/17

ER47 **AMENDMENT/S: REQUEST FOR APPROVAL**

Subsequent to receipt of ethical approval above, I, the applicant, would like to request the following amendment/s to my original proposal.

Removal of one measure from the study (Empathy Quoitent). In review of the measures included it was felt that this construct (Theory of Mind) was being measured by the Interpersonal Reactivity Index (IRI) and therefore was surplus.

In addition, only the subscales differentiating emotions, bodily awareness and analyses of emotions will be used from the Emotion Awareness questionnaire as the other subscales were felt to not be measuring the construct of affect consciousness.

While these additional questions could have been left in the study, they were increasing the length of the questionnaire and not adding anything additional. By reducing the length of the questionnaire, the burden placed on the participating adolescents will be reduced which is likely to result in an improvement in data quality (i.e. a reduction in fatigue).

These changes have been made in the above document.

From suggestions made by the sponsor, a number of changes have been made to the documents. These are:

- All documents have a footer containing a short title (Adolescent Mentalising), version number and date
- The contact for complaining has been changed to “If you wish to make a complaint about the study, please contact the University of Edinburgh’s Research Governance team via email at: resgov@accord.scot” as per the sponsor request
- University logo added to all documents
- Adolescent Participant Information Sheet:
 - Additional information added to “What will happen?” → “You will be asked to complete a questionnaire. The questionnaire contains questions that ask you about you, your feelings and your relationship with others. There are no right or wrong answers for these questions, and your answers will be kept confidential (i.e. no one will know that the answers are yours).”
 - Additional information added → **“Why have I been invited?** You have been invited as we are interested specifically in how this thinking skill works in adolescents as there is currently little research looking at this.” **“Do I have to take part?** It is completely your choice if you take part in this study and you do not have to take part. Even

if your parent/guardian has said you can take part, you can still choose not to."

- Parent Informed Consent:
 - Points changed to initial boxes to indicate that they understand the points of the consent
 - Signature and name removed
- Parent/Guardian Information Sheet:
 - Additional information added → **Why has my child been invited?** The study is interested specifically in how this thinking skill works in adolescents as there is currently little research looking at this. **Does my child have to take part?** No and an alternative task will be available for your child to do if they are not participating.
- Participant Debrief and Feedback sheet:
 - Wording changed from "This study was looking at skills involving holding ourselves in mind and how this might relate to wellbeing." To "This study was looking at a thinking skill called mentalising and how this might relate to wellbeing."
- Questionnaire:
 - Removal of one questionnaire and reduction in questions of the other (as per changes mentioned above)
 - Scoring guidelines for the questionnaires at the top of each page is the questionnaire goes over one page to make it easier to score
 - Alterations made to the adolescent information sheet also made here as this is repeated
 - Points changed to initial boxes to indicate that they understand the points of the consent in the consent part
 - Signature and name removed from consent part

Signature:

Date: 07/07/2017

ER48 **CONCLUSION TO ETHICAL REVIEW OF AMENDMENT**

I can confirm that the above amendment has been reviewed by two independent reviewers. It is their opinion that:

- a. Ethical issues have been satisfactorily addressed and no further response from the applicant is necessary,

Signature:

Position: Lecturer in Clinical Psychology, Ethics Tutor

Date:07/07/17

ER47 **AMENDMENT/S: REQUEST FOR APPROVAL**

Subsequent to receipt of ethical approval above, I, the applicant, would like to request the following amendment/s to my original proposal.

The parent/guardian consent process has changed from an opt-in to an opt-out process. This was done as there were concerns from the schools that an opt-in system would lead to a reduced number of adolescents participating. To ensure that the parent/guardian is still able to make this choice the participant information sheet will be provided in advance to the parent/guardian, and the schools (not the lead researcher) will get in contact (probably via text or email) to remind them that they need to opt-out if they do not want their child participating. The parent/guardian participant information sheet has been changed to reflect this and the parent/guardian consent form as been changed to an opt-out form.

Signature:

Date: 10/10/2017

ER48 **CONCLUSION TO ETHICAL REVIEW OF AMENDMENT**

I can confirm that the above amendment has been reviewed by two independent reviewers. It is their opinion that:

a Ethical issues have been satisfactorily addressed and no further response from the applicant is necessary,

- a. OR
- b. The ethical issues listed below arise and the following steps are being taken to address them:

Signature:

Position: Chair SREC

Date: 11.10.17

ER47AMENDMENT/S: REQUEST FOR APPROVAL

Subsequent to receipt of ethical approval above, I, the applicant, would like to request the following amendment/s to my original proposal.

Missing information. While none of the forms have changed since the last amendment I have noticed that the information about one of the measures was not correct (Balanced Index of Psychological Mindedness, BIPM). This has now been changed in the form above.

Signature:

Date: 12.01.2018

ER48CONCLUSION TO ETHICAL REVIEW OF AMENDMENT

I can confirm that the above amendment has been reviewed by two independent reviewers. It is their opinion that:

- a. Ethical issues have been satisfactorily addressed and no further response from the applicant is necessary

Signature:

Position: Lecturer in Clinical Psychology, Ethics Tutor

Date: 12/01/18

Acronyms / Terms Used

NHS: National Health Service

SHSS: School of Health in Social Science

IRAS: Integrated Research Applications System

Section: The SHSS is divided into Sections or subject areas, these are; Nursing Studies, Clinical Psychology, C-PASS.

Appendix C: Approval to Complete Research in Moray Schools

Email

Vivian Cross - request to conduct research in secondary schools

Educationandsocialcare <educationandsocialcare@moray.gcsx.gov.uk>

Fri 16/06/2017 12:23

To:

BATTERSBY, Shona (NHS GRAMPIAN);

You replied on 16/06/2017 13:29.

Good Afternoon,

This has been sent to all secondary schools and if they are interested they will contact you directly.

Regards

Vivienne

Vivienne Cross | Head of Schools & Curriculum Development | Education & Social Care

vivienne.cross@moray.gov.uk | [website](#) | [facebook](#) | [@VCrossHoSCD](#) | [newsdesk](#)

01343 563411 | 07800 678526

From: BATTERSBY, Shona (NHS GRAMPIAN) [<mailto:s.battersby@nhs.net>]

Sent: 16 June 2017 10:43

To: Educationandsocialcare

Subject: Vivian Cross - request to conduct research in secondary schools

Dear Vivian,

My name is Shona Battersby and I am a trainee clinical psychologist in NHS Grampian and I am looking to complete a research project in secondary schools in Moray. The project has a focus on understanding factors related to adolescent well-being, and consists of one questionnaire that adolescents complete (12-16 years) during one class period. Attached to this email are all the documents that I felt would be useful to explain the project.

The attached documents are:

- Ethics form for Aberdeenshire (I thought this might be helpful as it contains additional questions that are specific to schools.
- Ethical Approval from the University of Edinburgh
- PVG certificate of the lead researcher (Shona Battersby)
- Information sheet for the adolescents
- Information sheet for the parents/guardians
- Consent form for the parent/guardian
- Questionnaire (which includes the consent for the adolescents)
- Debriefing and feedback form for the adolescents
- Teacher document that explains the project and answers some questions

I will meet with schools to explain the project and answer any questions they should have. Also, I will be offering either an educational session for students or a training opportunity for staff to thank the schools for their participation. Where possible I will allow the schools to define what they would find most useful.

Hopefully the documents I have provided will explain the project and if you have any questions or would like to discuss the project further please do not hesitate to get in contact (tel: 07735570589).

I look forward to hearing from you

Yours Sincerely

Shona Battersby

Trainee Clinical Psychologist

Appendix D: Participant Information Sheet



Dr David
Huxtable



Shona
Battersby



Dr Joanne
Williams



Participant Information Sheet

Project Title

Holding Ourselves in Mind (Adolescent mentalising ability and psychopathology: The creation of a short mentalising measure for adolescents)

Invitation

You are invited to participate in a research study on mentalising and its links to wellbeing. Mentalising is a thinking skill that helps us to understand ourselves and others. This study aims to understand this thinking skill better in adolescents and how it might link to wellbeing. Therefore we are really interested in the views of individuals your age. The study will also hopefully allow us to better help adolescents who struggle with this skill. The research is being conducted by Shona Battersby (Trainee Clinical Psychologist) who is a student at the University of Edinburgh. The study is being supervised by Dr Joanne Williams (Senior Lecturer) who works at the University of Edinburgh and Dr David Huxtable (Clinical Psychologist). This project has been approved by the Psychology Research Ethics Committee.

Why have I been invited?

You have been invited as we are interested specifically in how this thinking skill works in adolescents as there is currently little research looking at this.

Do I have to take part?

No, it is completely your choice if you take part in this study and you do not have to take part. Even if your parent/guardian has said you can take part, you can still choose not to. If you choose not to take part there will be something else to do during the class.

What will happen?

You will be asked to complete a questionnaire. The questionnaire contains questions that ask you about you, your feelings and your relationship with others. There are no right or wrong answers for these questions, and your answers will be kept confidential (i.e. no one will know that the answers are yours).

Time Commitment

The measures should take about 45 minutes to complete.

Participant Rights

You may decide to stop taking part in this study at any time. If you decide you do not want to take part anymore, you have the right to ask for anything that you have completed to be destroyed.

You have the right to have any questions you have about this study answered. If you have any questions about this study, please ask Shona Battersby (Lead Researcher).

Confidentiality and Anonymity

The data we collect from you does not contain any information that would identify who you are. Therefore, once you have handed in the questionnaire and forms there is no way for anyone to know it was you that completed these.

For Further Information

Shona Battersby will be glad to answer your questions about this study at any time. You can contact her by email at s1579976@sms.ed.ac.uk or when she is in your school. The times and dates that she is in the school are on the form provided.

If you would like to speak to someone independent of the study, please contact Professor Charlotte Clarke (Head of the School of Health in Social Science) on 0131 6504327 or at charlotte.clarke@ed.ac.uk

If you wish to make a complaint about the study, please contact the University of Edinburgh's Research Governance team via email at: resgov@accord.scot

Appendix E: Parent/Guardian Information Sheet



Dr David
Huxtable



Shona
Battersby



Dr Joanne
Williams



Participant Information Sheet – Parent/Guardian

Project Title

Holding Ourselves in Mind (Adolescent mentalising ability and psychopathology: The creation of a short mentalising measure for adolescents)

Invitation

Your child is being asked to take part in a research study on mentalising. Mentalising is a thinking skill that lets us understand other people. This study aims to understand this thinking skill better in adolescents. The research is being conducted by Shona Battersby (Trainee Clinical Psychologist) who is a student at the University of Edinburgh. The study is being supervised by Dr Joanna Williams (Senior Lecturer) who works at the University of Edinburgh. This project has been approved by the Psychology Research Ethics Committee.

If you **do not** want your child to participate you must complete and send in the attached 'Opt-out' form. If this form is not received before the date of the study, it will be assumed that you consent to your child participating in the study.

What will happen?

Your child will be provided with a similar information sheet to this one explaining the study. They will also be provided with a consent form to allow them choice as to whether they take part in the study. If you do not opt-out of your child participating and your child consents to participating in the study, then your child will be asked to complete a questionnaire. Children not participating in the study will have an alternative task to complete during this time. At the end of the study your child will be provided with a debrief sheet explaining the study further to them, and a sheet that they can fill out if they would like to receive the results of the study. The information they provide on

this sheet will be kept secure (i.e. no one but Shona Battersby (Lead Researcher) will see this information).

Why has my child been invited?

The study is interested specifically in how this thinking skill works in adolescents as there is currently little research looking at this.

Does my child have to take part?

No and an alternative task will be available for your child to do if they are not participating.

Time Commitment

The questionnaires should take about 45 minutes to complete and will be completed during a class period. This will be negotiated with the school to ensure this does not interfere with normal academic teaching.

Participant Rights

Your child may decide to stop taking part in this study at any time. If they decide they do not want to take part anymore, they have the right to ask for anything that they have completed to be destroyed. This will be explained in the information they receive and by their teacher before starting the study.

You and your child have the right to have any questions you have about this study answered. If you have any questions about this study, please ask Shona Battersby (Lead Researcher – details provided at the bottom).

Benefits or Risks

It is hoped that this study will help in understanding mentalising in adolescents and its links to mental wellbeing.

Whilst unlikely, it is possible that some of the questions in the questionnaire may cause distress to some individuals. At the end of the study your child will be provided with a list of supports that they can access if they feel they need someone to talk to.

Confidentiality and Anonymity

The data collected in this study does not contain any information that would identify your child. Therefore, once the questionnaires and forms are handed in there is no way for your child's data to be identified. The only personal information provided in the study will be the first part of your post code. This will

be transformed by the lead researcher (Shona Battersby) into a code and then the first part of your postcode will be destroyed. The data will be kept in an anonymised form for 10 years and may be used for future ethically approved research.

For Further Information

Shona Battersby will be glad to answer your questions about this study at any time. You can contact her by email at s1579976@sms.ed.ac.uk or when she is in your school. The times and dates that she is in the school are on the form provided.

If you would like to speak to someone independent of the study, please contact Professor Charlotte Clarke (Head of the School of Health in Social Science) on 0131 6504327 or at charlotte.clarke@ed.ac.uk

If you wish to make a complaint about the study, please contact the University of Edinburgh's Research Governance team via email at: resgov@accord.scot

Feedback

If you would like to find out the results of this study please fill out the information below. The information you provide will be kept secure (i.e. no one but Shona Battersby (Lead Researcher) will see this information). A summary of the results of the study will be sent to you around June 2018.

Name: _____

Email Address: _____

Appendix F: Parent/Guardian opt-out consent form

Opt-Out Form – Parent/Guardian



Project Title

Holding Ourselves in Mind (Adolescent mentalising ability and psychopathology: The creation of a short mentalising measure for adolescents)

Project Summary

Please fill out the form below if you **do not** want your child to participate in the study on _____ (date of study will be entered here)

Your child's name

Your name (PRINTED)

Relationship to child

Holding Ourselves in Mind

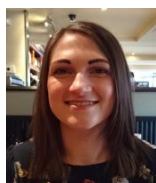


**Study by Shona Battersby (Trainee Clinical
Psychologist)**

s1579976@sms.ed.ac.uk



Dr David
Huxtable



Shona
Battersby



Dr Joanne
Williams

Participant Information Sheet

Project Title

Holding Ourselves in Mind (Adolescent mentalising ability and psychopathology: The creation of a short mentalising measure for adolescents)

Invitation

You are invited to participate in a research study on mentalising and its links to wellbeing. Mentalising is a thinking skill that helps us to understand ourselves and others. This study aims to understand this thinking skill better in adolescents and how it might link to wellbeing. Therefore we are really interested in the views of individuals your age. The study will also hopefully allow us to better help adolescents who struggle with this skill. The research is being conducted by Shona Battersby (Trainee Clinical Psychologist) who is a student at the University of Edinburgh. The study is being supervised by Dr Joanne Williams (Senior Lecturer) who works at the University of Edinburgh and Dr David Huxtable (Clinical Psychologist). This project has been approved by the Psychology Research Ethics Committee.

Why have I been invited?

You have been invited as we are interested specifically in how this thinking skill works in adolescents as there is currently little research looking at this.

Do I have to take part?

No, it is completely your choice if you take part in this study and you do not have to take part. Even if your parent/guardian has said you can take part, you can still choose not to. If you choose not to take part there will be something else to do during the class.

What will happen?

You will be asked to complete a questionnaire. The questionnaire contains questions that ask you about you, your feelings and your relationship with others. There are no right or wrong answers for these questions, and your answers will be kept confidential (i.e. no one will know that the answers are yours).

Time Commitment

The measures should take about 45 minutes to complete.

Participant Rights

You may decide to stop taking part in this study at any time. If you decide you do not want to take part anymore, you have the right to ask for anything that you have completed to be destroyed.

You have the right to have any questions you have about this study answered. If you have any questions about this study, please ask Shona Battersby (Lead Researcher).

Confidentiality and Anonymity

The data we collect from you does not contain any information that would identify who you are. Therefore, once you have handed in the questionnaire and forms there is no way for anyone to know it was you that completed these.

For Further Information

Shona Battersby will be glad to answer your questions about this study at any time. You can contact her by email at s1579976@sms.ed.ac.uk or when she is in your school. The times and dates that she is in the school are on the form provided.

If you would like to speak to someone independent of the study, please contact Professor Charlotte Clarke (Head of the School of Health in Social Science) on 0131 6504327 or at charlotte.clarke@ed.ac.uk

Informed Consent Form

Project Title

Holding Ourselves in Mind (Adolescent mentalising ability and psychopathology: The creation of a short mentalising measure for adolescents)

Project Summary

Please initial in the boxes to indicate that you understand that by signing below, you are agreeing that:

- ☐ You have read and understood the Participant Information Sheet (Version 1.0, 14/07/17)
- ☐ Any questions you have had about the study have been answered and you are happy with the answer
- ☐ You are taking part in this study voluntarily. This means that it is your choice to take part and not due to anyone telling you that you have to take part.
- ☐ You can choose to stop taking part until you hand your questionnaire and your answers will be destroyed
- ☐ I agree to take part in the above study

Your name (PRINTED)

Your Signature

Date

Name of Person obtaining Consent

Signature of Person obtaining Consent

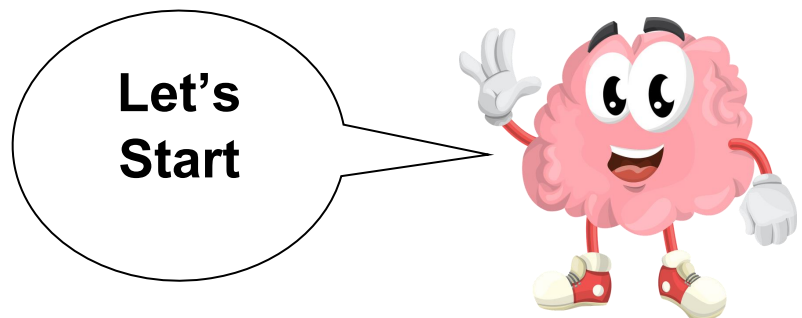
If you wish to make a complaint about the study, please contact the University of Edinburgh's Research Governance team via email at: resgov@accord.scot

Thank you for agreeing to take part in the study.

On the following pages are all the questions. For each question please tick (✓) or circle the box that best applies to you. Please answer all the questions

Take your time completing the questions. There are no right or wrong answers so try to answer the questions as honestly as you can. If you are not absolutely certain of your answer or the item seems silly, please pick the one that best fits you.

The front sheets will be removed from the questionnaire so no one will know what answers you have put.



1. Please tick (✓) the box that best applies to you.

	12	13	14	15	16
How old are you?					

2. Please tick (✓) the box

	Male	Female	Prefer not to say
Are you:			

3. Please tick (✓) all the people you feel you could talk to if you had a problem:

Mum		Friend		Other (please say who)	
Dad		Teacher			
Aunt/Uncle		Guidance Counsellor			
Brother/Sister		Doctor			
Grandma/Grandpa		Friends Family			
Cousin		Teachers Assistant			
Sports Coach		Club Leader			

4. What is the first part of your post code (e.g. AB25)?

If you do not know this that's ok. Just leave it blank

We want to know more about what you think, how you feel, and what you do. **Read** each sentence. Then, circle the number that tells **how often each sentence is true for you.**

	Never True	Rarely True	Sometimes True	Often True	Always True
1. I get upset with myself for having feelings that don't make sense	0	1	2	3	4
2. At school, I walk from class to class without noticing what I'm doing	0	1	2	3	4
3. I keep myself busy so I don't notice my thoughts or feelings	0	1	2	3	4
4. I tell myself that I shouldn't feel the way I'm feeling	0	1	2	3	4
5. I push away thoughts that I don't like	0	1	2	3	4
6. It's hard for me to pay attention to only one thing at a time	0	1	2	3	4
7. I get upset with myself for having certain thoughts	0	1	2	3	4
8. I think about things that have happened in the past instead of thinking about things that are happening now	0	1	2	3	4
9. I think that some of my feelings are bad and that I shouldn't have them	0	1	2	3	4
10. I stop myself from having feelings that I don't like	0	1	2	3	4

Instructions: Please read each statement and tick (✓) the one that you feel describes you most clearly. Do not think too much about it - your first responses are usually the best. Thank you.

	Strongly Disagree	Disagree	Disagree Somewhat	Agree Somewhat	Agree	Strongly Agree
1. People's thoughts are secret to me						

	Strongly Disagree	Disagree	Disagree Somewhat	Agree Somewhat	Agree	Strongly Agree
2. I worry a lot about what people are thinking and feeling						
3. My picture of my parents changes as I change (As I get older how I see my parents changes)						
4. I realise that I can sometimes misunderstand my best friends' reactions						
5. I believe that my parents' behaviour towards me should not be explained by how they were raised						
6. Other people tell me I'm a good listener						
7. I often have to force people to do what I want them to do						
8. I always know what I feel						
9. I feel that, if I am not careful, I could get in the way of another person's life						
10. I often get confused about what I am feeling						

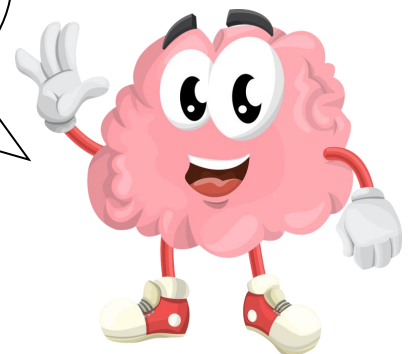
	Strongly Disagree	Disagree	Disagree Somewhat	Agree Somewhat	Agree	Strongly Agree
11. I believe that people can see a situation differently based on their own beliefs and experiences						
12. I believe there's no point trying to guess what's on someone else's mind						
13. I get confused when people talk about their feelings						
14. I believe other people are too confusing to bother figuring out						
15. I find it difficult to see other people's points of view						
16. I am a good mind reader						
17. I don't always know why I do what I do						
18. I pay attention to my feelings						
19. In an argument, I keep the other person's point of view in mind						
20. Understanding the reasons for people's actions helps me to forgive them						

	Strongly Disagree	Disagree	Disagree Somewhat	Agree Somewhat	Agree	Strongly Agree
21. I believe that there is no RIGHT way of seeing any situation						
22. When I get angry I say things without really knowing why I am saying them						
23. Those close to me often seem to find it difficult to understand why I do things						
24. I am better guided by reason than by my gut						
25. I usually know exactly what other people are thinking						
26. I can't remember much about when I was a child						
27. Strong feelings often cloud my thinking						
28. I trust my feelings						
29. When I get angry I say things that I later regret						
30. My feelings about a person is hardly ever wrong						
31. For me actions speak louder than words						

	Strongly Disagree	Disagree	Disagree Somewhat	Agree Somewhat	Agree	Strongly Agree
32. I frequently feel that my mind is empty						
33. I predict that my feelings might change even about something that I feel strongly about						
34. I like to think about the reasons behind my actions						
35. If I feel unsure of myself, I can behave in ways that offend others						
36. Sometimes I do things without really knowing why						
37. I can tell how someone is feeling by looking at their eyes						
38. Sometimes I find myself saying things and I have no idea why I have said them						
39. In order to know exactly how someone is feeling, I have found that I need to ask them						
40. I can mostly predict what someone else will do						

	Strongly Disagree	Disagree	Disagree Somewhat	Agree Somewhat	Agree	Strongly Agree
41. I'm often curious about the meaning behind others' actions						
42. I have noticed that people often give advice to others that they actually wish to follow themselves						
43. I wonder what my dreams mean						
44. How I feel can easily affect how I understand someone else's behaviour						
45. I pay attention to the impact of my actions on others' feelings						
46. I know exactly what my close friends are thinking						

**You're doing
really well.
Keep going**



How I typically act toward myself in difficult times

Please read each statement carefully before answering. Please indicate (✓) how often you behave in the stated manner.

	Almost Never 1	2	3	4	Almost Always 5
1. When I fail at something important to me I become consumed by feelings of inadequacy (feelings that I am not good enough)					
2. I try to be understanding and patient towards those aspects of my personality I don't like					
3. When something painful happens I try to take a balanced view of the situation					
4. When I'm feeling down, I tend to feel like most people are probably happier than I am					
5. I try to see my failings as part of the human condition (I try to see my mistakes as something that happens to everyone)					
6. When I'm going through a very hard time, I give myself the caring and tenderness I need					
7. When something upsets me I try to keep my emotions in balance					
8. When I fail at something that's important to me, I tend to feel alone in my failure					
9. When I'm feeling down I tend to obsess and fixate on everything that's wrong					
10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people (I try to remind myself that everyone feels not good enough at times)					
11. I'm disapproving and judgmental about my own flaws and inadequacies					
12. I'm intolerant and impatient towards those aspects of my personality I don't like					

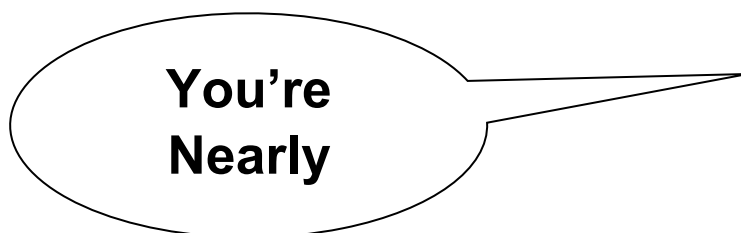
Below you will find some statements that people may use to describe themselves.

Please indicate the extent to which you agree with each statement by checking (✓) the statement that best applies to you. There are no right or wrong answers; your impression is the only thing that matters.

	Not True	A Little Bit True	Somewhat True	Fairly True	Very Much True
1. I am often not aware of my feelings					
2. My attitude and feelings about things fascinate me					
3. Most of the time, I experience little or no emotion					
4. I guess I rarely listen to my feelings					
5. My negative feelings can teach me a lot about myself					
6. I don't know what's going on inside me					
7. In the end you're better off when taking seriously also your negative feelings					
8. My feelings show me what I need					
9. I am out of touch with my innermost feelings					
10. I never think about what made me act a certain way					
11. I am better off when being in touch with my feelings					
12. I can't make sense out of my feelings					
13. I love exploring my "inner" self					
14. My deeper feeling is a good advisor					

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the bases of how things have been for you over the last six months.

	Not True	Somewhat True	Certainly True
I try to be nice to other people. I care about their feelings			
I am restless, I cannot stay still for long			
I get a lot of headaches, stomach-aches or sickness			
I usually share with other (food, games, pens etc.)			
I get very angry and often lose my temper			
I am usually on my own. I generally play alone or keep to myself			
I usually do as I am told			
I worry a lot			
I am helpful if someone is hurt, upset or feeling ill			
I am constantly fidgeting or squirming			
I have one good friend or more			
I fight a lot. I can make other people do what I want			
I am often unhappy, down-hearted or tearful			
Other people my age generally like me			
I am easily distracted, I find it difficult to concentrate			
I am nervous in new situations. I easily lose confidence			
I am kind to younger children			
I am often accused of lying or cheating			
Other children or young people pick on me or bully me			
I often volunteer to help others (parents, teachers, children)			
I think before I do things			
I take things that are not mine from home, school or elsewhere			
I get on better with adults than with people my own age			
I have many fears. I am easily scared.			
I finish the work I'm doing. My attention is good.			



Below you will find 17 short sentences. Every sentence is a statement about how you can feel or think about your feelings. You can mark each sentence if this is true, sometimes true or not true for you. Choose the answer that best fits you. You can only mark one answer. If you find that difficult, choose the answer that fits you most of the time. Different children have different feelings and ideas about their feelings. Therefore, there is no right or wrong answers, because it is just about what you think.

	Not True	Sometimes True	True
1. I am often confused or puzzled about what I am feeling			
2. When I am scared or nervous, I feel something in my tummy			
3. When I am angry or upset, I try to understand why			
4. It is difficult to know whether I feel sad or angry or something else			
5. When I feel upset, I can also feel it in my body			
6. My feelings help me to understand what has happened			
7. I never know exactly what kind of feeling I am having			
8. I don't feel anything in my body when I am scared or nervous			
9. When I have a problem, it helps me when I know how I feel about it			
10. When I am upset, I don't know if I am sad, scared or angry			
11. My body feels different when I am upset about something			
12. It is important to understand how I am feeling			
13. Sometimes, I feel upset and I have no idea why			
14. When I am sad, my body feels weak			
15. I always want to know why I feel bad about something			
16. I often don't know why I am angry			
17. I don't know when something will upset me or not			

These questions are about how you have been feeling OVER THE LAST WEEK. Please read each question carefully. Think how often you have felt like that in the last week and then put a cross in the box you think fits best.

	Not at all	Only occasionally	Sometimes	Often	Most or all of the time
1. I've felt edgy or nervous					
2. I haven't felt like talking to anyone					
3. I've felt able to cope when things go wrong					
4. I've thought of hurting myself					
5. There's been someone I felt able to ask for help					
6. My thoughts and feelings distressed me					
7. My problems have felt too much for me					
8. It's been hard to go to sleep or stay asleep					
9. I've felt unhappy					
10. I've done all the things I wanted to					

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you by choosing the appropriate box. READ EACH ITEM CAREFULLY BEFORE RESPONDING. Answer as honestly as you can. Thank you.

	A DOES NOT DESCRIBE ME WELL	B	C	D	E DESCRIBES ME VERY WELL
1. I daydream and fantasize, with some regularity (often), about things that might happen to me					
2. I often have tender, concerned feelings for people less fortunate than me					

	A DOES NOT DESCRIBE ME WELL	B	C	D	E DESCRIBES ME VERY WELL
3. I sometimes find it difficult to see things from the "other guy's" point of view					
4. Sometimes I don't feel very sorry for other people when they are having problems					
5. I really get involved with the feeling of the characters in a novel					
6. In emergency situations, I feel apprehensive (anxious that something bad will happen) and ill-at-ease					
7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it					
8. I try to look at everybody's side of a disagreement before I make a decision					
9. When I see someone being taken advantage of, I feel kind of protective towards them					
10. I sometimes feel helpless when I am in the middle of a very emotional situation					
11. I sometimes try to understand my friends better by imaging how things look from their perspective					
12. Becoming extremely involved in a good book or movie is somewhat rare for me					
13. When I see someone get hurt, I tend to remain calm					
14. Other people's misfortunes do not usually disturb me a great deal					
15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments					
16. After seeing a play or movie, I have felt as though I were one of the characters					
17. Being in a tense emotional situation scares me					
18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them					

	A DOES NOT DESCRIBE ME WELL	B	C	D	E DESCRIBES ME VERY WELL
19. I am usually pretty effective in dealing with emergencies					
20. I am often quite touched by things that I see happen					
21. I believe that there are two sides to every question and try to look at them both					
22. I would describe myself as a pretty soft-hearted person					
23. When I watch a good movie, I can very easily put myself in the place of the leading character.					
24. I tend to lose control during emergencies					
25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while					
26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me					
27. When I see someone who badly needs help in an emergency, I go to pieces					
28. Before criticising somebody, I try to imagine how I would feel if I were in their place					

Comments

We are keen to know how you found completing this questionnaire (i.e. what you liked or didn't like about it). Please write this in the box below:

THANK YOU



Appendix H: Teacher Instructions



Teacher Instructions for Holding Ourselves in Mind (Adolescent mentalising ability and psychopathology: The creation of a short mentalising measure for adolescents)

**Only children whose parent/guardian has consented to them
participating should be provided with the questionnaire.**

You should have a list of the adolescents that can participate in the study.

Please hand out the questionnaire to these children and then remind them of the following:

- It is important that they read the 'Participant Information' sheet on the second page so they understand what they are being asked to do
- If they have any questions they should ask (please refer to the 'Question and Answer' sheet)
- It is their choice to participate in the study – they do not have to
- They can choose to stop taking part at any time. If they do this their answers will be destroyed.
- The consent sheet with their name on will be removed so their answers will be anonymous (i.e. no one will know it was them that completed the questionnaires).
- To take their time in answering the questions and if they are not too sure of an answer to give their best guess or the answer that best applies to them.
- We are interested in knowing their thoughts so don't worry about anyone else's answers.

There is no right or wrong answer.

The adolescents taking part in this study may ask for clarification about the questions they are answering. It is fine to clarify a single word if they do not

know what it means (e.g. “inadequacy” - feelings that I am not good enough) but please do not reword the questions.

When they have finished please give them the ‘Participant Debrief’ sheet. This tells them a little bit more about the study and also gives them a sheet to provide their name, school and email address (if they have one) to receive feedback on the results of the study if they would like this. It also provides them with a range of supports they can access if they find that some of the questions have made them feel distressed. This is unlikely, however there are two measures that are looking at general mental health and wellbeing which could cause some distress for some adolescents. The supports provided to the adolescents are; Childline on 0800 1111 (available 24 hours a day) or at www.childline.org, Young Minds at www.youngminds.org.uk, Get Connected on 0808 808 4994 (available 7 days a week 1pm-11pm) or at www.getconnected.org.uk, as well as the guidance counsellor and yourself.

Once everything is completed please put all the documents into the container provided and put this _____ (this will be a locked location that is identified in each school to keep the raw data secure until it is collected by the lead researcher (Shona Battersby). Every effort will be made to collect the data as close to the date of completion).

If you have any questions about this study, please ask Shona Battersby (Lead Researcher). You can contact her by email at s1579976@sms.ed.ac.uk. She will also be in the school on the dates provided.

If you would like to speak to someone independent of the study, please contact Professor Charlotte Clarke (Head of the School of Health in Social Science) on 0131 6504327 or at charlotte.clarke@ed.ac.uk

Anonymised results of the study will be sent to your school in the form of a short report. However, if you are interested in receiving a copy of this please email Shona Battersby and this will be emailed to you. It is anticipated that the results of the study will be available around June 2018.

Thank you for supporting this study

If you wish to make a complaint about the study, please contact the University of Edinburgh's Research Governance team via email at: resgov@accord.scot

Question and Answer Sheet

What does this question mean?

Although you cannot explain the question it is ok to ask if there is a particular word they do not understand and explain this.

What will happen to my answers?

The answers will be put together with everyone else's answers and used to understand the skill of holding others in mind better. The answers will also be used to see if there is a link between this skill and wellbeing. The answers will be kept secure (i.e. only the lead researcher (Shona Battersby) and her two supervisors (Dr Joanne Williams and Dr David Huxtable) will have access to the data) and no one will know who provided the answers.

Will others know my answers?

No. Once the questionnaire is handed in, anything with your name on will be removed. Therefore there is no way to know who answered the questions.

This document will be expanded with further questions and answers which will be based on the questions the pilot group has.

Appendix I: Participant Debrief



Participant Debrief



Thank you for taking part in this study.

This study was looking at a thinking skill called mentalising and how this might relate to wellbeing. It is hoped that the answers you have provided will help in understanding these skills better in people the same age as you. This could then help us to provide better support for those who struggle with these skills.

Some of the questions you answered about how you feel can sometimes lead to people feeling distressed or anxious. If you require any support after this study (i.e questions in the study have made you feel distressed or anxious) please let your teacher know or speak to your guidance teacher _____ (name for the guidance counsellor in the school will be provided here plus any other details of contacts that the school has for support). Alternatively you can find support from:

- Childline on 0800 1111 (available 24 hours a day) or at www.childline.org
- Young Minds at www.youngminds.org.uk
- **Get Connected on 0808 808 4994 (available 7 days a week 1pm-11pm) or at www.getconnected.org.uk**

If you decide that you do not want your data included in the study, then please let your teacher know and your answers will be destroyed.

If you have any questions about this study, please ask Shona Battersby (Lead Researcher). You can contact her by email at s1579976@sms.ed.ac.uk or when she is in your school. The times and dates that she is in the school are on the form provided.

If you would like to speak to someone independent of the study, please contact Professor Charlotte Clarke (Head of the School of Health in Social Science) on 0131 6504327 or at charlotte.clarke@ed.ac.uk

If you would like to find out the results of this study please fill out the sheet attached.

If you wish to make a complaint about the study, please contact the University of Edinburgh's Research Governance team via email at: resgov@accord.scot

Feedback

If you would like to find out the results of this study, please fill out the information below. The information you provide will be kept secure (i.e. no one but Shona Battersby (Lead Researcher) will see this information). A summary of the results of the study will be sent to you around June 2018.

Name: _____

School: _____

Email Address: _____